SUPER-SIZED TROUBLESHOOTING ISSUE

Tech Support
Reference
PC Troubleshooting & Maintenance

Create Hard Drive Partitions

Fine-Tune Video Settings

Safely Edit The Registry

Protect Your Passwords

Configure A Wireless Router

Troubleshoot Backup Problems

Troubleshoot A New PC

Replace A Dead Hard Drive

Solve Problems
In Windows & Mac OS X

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Volume 21 . August 2010 . Issue 8

RECOVER LOST FILES
DIG OUT YOUR DATA

48 - 141
Tech Support Reference
Do-It-Yourself Help for All Your PC Troubles

Reviews

JBL Creature III Speakers

Windows Central

Convert Slides To Digital Images p.26

Mac Security p.31

Mr. Modem p.37

Photoshop Elements p.42

TECH SUPPORT REFERENCE

Smart Solutions Advertisements

August Web-Only Articles

Security

Editor's Note

It's well-known that the data on our computers is typically more valuable (at least, to us) than the computers themselves. This month, we show you how to retrieve that important data, whether you lost it to a disaster, a hardware failure, or the famous "user error."

Our file recovery articles aren't the only reason that the August issue should find a home on (or near) your desk. This issue also features a tech support reference section that includes the installation, maintenance, and troubleshooting tips that will see your PC through good times and bad.

If you have ever taken advantage of our SmartPeople Computer Support service (or if you're thinking about giving it a try), I'd like to direct your attention to the Help Desk articles that kick off our extended tech support section (page 48). Here, we show new callers what to expect and provide tips that will help even experienced tech support customers. Our techs can connect directly to your computer to fix problems for you, so we show you how that is done and explain how control sharing works. We also take you on a tour of our online Tech Support Center, which is a massive collection of our most important tech support articles.

This issue's comprehensive tech support package is one that you'll find yourself turning to throughout the year—sometimes for a quick refresher and sometimes in a panic. Either way, our plain-English tutorials are there to help you with your computers and network.

Joshua B. Gulick

Joshua Gulick

Hello, Moshi
Voice-Controlled Bluetooth Car Kit

LINNÉ OURADA

SEND YOUR COMMENTS TO
linne@smartcomputing.com

Statistics relating to cell phones and driving are topping news headlines lately, and it's not just teens who are the focus of the topic—a June survey conducted by the Pew Internet & American Life Project found that 47% of adult texters have sent or read a text message while driving, and 75% have talked on a cell phone while driving.

On a related note, a handful of states have passed laws that ban all handheld cell phone use, some ban use only for certain age groups, and several ban text messaging; some are primary laws, while some are secondary. Whatever your state's law is concerning the use of cell phones while driving, the safest measure is to simply not do it.

But, let's face it: If your phone rings on the passenger seat next to you, it's hard not to answer it, and people everywhere don't think twice before reaching for the phone. Hands-free kits come in handy to provide a safer means for those who talk on their phones while driving (especially for those whose state laws ban handheld calling).

The Moshi Lifestyle Voice Control Bluetooth Handsfree Car Kit lets you make and answer calls using just your voice. The device looks similar to a garage door opener and uses magnetic tips to attach to a metal clip that you place on your car's sun visor.

First, charge the device for four hours via the included car USB cable. (The device provides up to six hours of talk time.) Next, you'll need to pair your Bluetooth-enabled phone with the Moshi car kit. The instructions for each phone vary, but generally, you'll access your phone's Bluetooth menu, turn on the Bluetooth radio, and select an option to add a new device. Press the Power button on the Moshi car kit and then press the main center button; the device will attempt to pair with

Voice Control Bluetooth
Handsfree Car Kit
$79.99
Moshi Lifestyle
(877) 556-6744
www.moshilifestyle.com

your phone. Once the phone recognizes the Moshi car kit, enter the passcode 0000. (After this initial setup, the Moshi car kit should automatically pair with your phone every time you turn on the device.)

To trigger the voice control, say "hello, Moshi." Moshi responds with "say a command." The device recognizes more than a dozen commands, but I frequently used "redial" (dials the last outgoing call), "call back" (dials the last incoming call), and "am I connected?" (checks the connection status).

It took me a couple of days to memorize the list of commands (which are found in the Quick Start guide), but if you forget what commands are available, Moshi can provide them to you. Simply say "hello, Moshi" (to activate the voice control) and then say "what can I say?" (to hear a list of commands). You can also say "phone command" to activate the voice recognition on your phone (if available) and speak the name of a contact you want to call, or you can speak the phone number you want to call. Moshi will announce the numbers of incoming calls, and you can say "answer" or "ignore" for whichever action you want to take. (You can also reach up and press the center button to answer a call.)

Depending on how your phone's speed dial feature is set up, you can instruct Moshi to "call voicemail," "call home," or "call office," or you can configure the Moshi device to save favorite numbers by saying "settings menu" and then saying "save favorites" and following the prompts to assign numbers to the favorites list.

The first time I used the Moshi car kit, my contact on the other end of the call noticed a drop in the quality of the audio compared to previous calls; apparently, my voice was softer and a bit muffled. However, repositioning the device so that it was on the visor directly above my forehead and turning it so that the mic aimed toward my voice made a difference, and my friend on the other end of the call said he could then hear me clearly in subsequent calls. On my end, calls came through loud and clear.

If you've never used a Bluetooth car kit, it takes some time getting used to, but once you learn the commands, you can forget about the handset and concentrate on the road ahead. ▮

Loud & Clear
JBL Creature III Speakers

TARA SIMMONS BANTAM

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TARA@SMARTCOMPUTING.COM

The JBL Creature III speakers may have a funny name and look like a little family of sinister alien walruses, but they aren't just desktop ornaments for sci-fi enthusiasts. These serious speakers offer pure sound that will please audiophiles in any demographic. Their unique design makes them stand out from their boxy computer speaker brethren, but the sound system the distinctive exterior houses is what made me want to keep these speakers around.

Simple Setup

The shiny black 2.1 speaker system is made up of two satellite speakers (with 1.63-inch drivers) and one subwoofer (with a 3-inch driver). Setup was merely a matter of connecting the two satellite speakers to the larger sub, connecting the sub to my notebook, plugging in the setup's power cord, and pressing the Power button located on the back of the larger speaker. The speaker system connects to devices with a 3.5mm mini cord, which means I could also connect it to my digital audio player, gaming system, or anything with a compatible headphone jack.

While this system provides big sound, it's designed to be used in small spaces, such as a desktop. The largest speaker was small enough to fit comfortably on my desk at 9 x 9 x 9 inches, and the two smaller speakers took up little space at 2.75 x 3 x 3 (HxWxD) inches. And while, with three separate pieces and several cords, they're not exactly portable, the Creature

III speakers are light (4.6 pounds). And because they're easy to set up, sharing them between a gaming system and desktop system, for example, is an option.

The silver "tusks" of the subwoofer let me control the treble and bass. Other than a simple plus (+) and minus (-) sign, there are no indicators of the levels you've dialed to, so I appreciate that there's a slight resistance to signal when the knobs reach the middle, neutral position. Elsewhere, two tactile controls labeled with a simple plus and minus sign on one of the smaller speakers let me adjust the volume. The touch volume controls are sensitive and convenient. I did accidently turn the volume up and down by grabbing and bumping the buttons a few times, but I quickly learned to avoid them. The lack of a visual indicator of the volume was also a minor annoyance. Touching the plus and minus buttons simultaneously instantly mutes the system, a handy feature.

Beyond Basic Sound

Speaking of volume, the Creature III can get surprisingly loud. And even at volumes higher than anyone who likes their housemates would consistently use the speakers, the sound is clear and distortion-free. The instruments and vocals of music files sounded great on the speaker system. Additionally, the deep booms of movies resonated while softer dialog remained crisp and easy to understand. JBL attributes the sound quality to the use of its Odyssey transducer technology.

All in all, testing the Creature III speaker system reminded me of the joys of listening to music blasted into an open room. I often pipe my music through headphones, but there's just no substitute for a roomful of rich music, and the JBL Creature III speaker system is a huge step up from the basic speaker sets included with many standalone computers. This is one family of funny-looking creatures I'd like to have around. ▌

Creature III
$99.95
JBL
(800) 336-4525
www.jbl.com

Fujifilm FinePix XP10
A Life-Proof Point-&-Shoot

MARTY SEMS

SEND YOUR COMMENTS TO
marty@smartcomputing.com

Life takes you funny places. Will your current camera survive the trip? Come run through the sprinklers with me as I review a point-and-shoot that will. Don't worry; I've also added some tips for indoor sloth and indolence, too.

Fujifilm FinePix XP10

I've said it before: The best digital camera is the one you have with you when you need it. Yes, that is an endorsement of pocket-sized point-and-shoot models over digital SLR (single-lens reflex) cameras, even though the latter take better pictures. But if you leave your D-SLR in the closet because it's too heavy or bulky to take with you, who cares how good it is?

My hoary adage is also an endorsement of "ruggedized" cameras: ones that are waterproof, shockproof, freezeproof, yada yada. Extending the scenario above, if you tend to leave your pocket-sized point-and-shoot on your dresser because you're afraid you'll drop it halfway up a mountain, who cares how comfortable it is to carry?

Fujifilm's FinePix XP10 is not only extremely rugged, it's also pocketable. And because it doesn't look like a Tonka toy (unlike some other weatherproof cameras on the market), you won't be embarrassed to be seen with it.

The 12.2-megapixel XP10 is capable of taking some pretty decent pictures, especially when its tracking autofocus is engaged or the subject is holding still. This FinePix has a long list of neat features, but what I liked best was the fact that it had a separate shutter button to record video. And I'm talking about high-definition, 720p video

FinePix XP10
$199.95
Fujifilm
(800) 755-3854
us.fujifilm.com

PureSync
Free
Jumping Bytes
www.jumpingbytes.com/en

at a natural-looking frame rate. The 5X optical zoom was a plus, too.

I wish it weren't possible to install the battery the wrong way, and faster follow-up shots would be nice, but the XP10 is an awesome value for less than $190 online.

Just because I personally haven't been snow skiing or canoeing for more than a decade doesn't mean I won't ever go again (ahem). And gee, Spouse, what better way to encourage me to get out and do stuff than to buy me a ruggedized camera?

Adding A Second Router To Your Network

After subjecting my camera to my family, my dogs, and backyard sprinkler highjinks, I dried it off and moved its pics and videos to my main PC. Lately I've been using a freebie called PureSync to send photos, music, and more to the HTPC (home-theater PC) hooked up to our TV.

First, however, I had to add more Ethernet ports to the living room so that the HTPC and our PlayStation could both be online simultaneously. To do this, I dug our old 10/100Mbps (megabits per second) router out of the basement and connected it to our LAN (local-area network) near the TV.

The additional router worked in one respect—both devices could access the Web—but I couldn't make the HTPC visible to other PCs on the network for easy file transfers. I verified that every computer had file sharing turned on and was on the same workgroup, but no go. I don't have enough room here to go into detail, but here's what I had to do:

1. Set the second router's IP address to match the existing network's first three numbers (namely 192.168.1.x) but with a fourth number (x) outside the first router's DHCP (Dynamic Host Configuration Protocol) address range (namely 192.168.1.100 or higher).

2. Turn off DHCP on the second router.

3. Plug the existing network into one of the second router's LAN ports (not the single WAN or Uplink port).

I restarted each networking device and computer, and what do you know? Right there in my main PC's Network folder was COUCH-POTATO, my HTPC. A quick session with PureSync later, and my still-damp wife, daughter, and pets were enjoying our day on the big screen upstairs. ∎
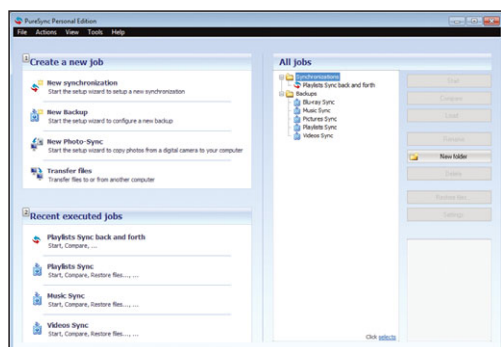
i-Got-Control
Change Channels With Your iPhone

Blaine Flamig

Send your comments to
blaine@smartcomputing.com

Connect. Select. Control.

iGi claims those are the only steps needed to let its plug-and-play IRB1 adapter turn an Apple iPhone, iPod touch, or iPad into a universal remote for controlling an unlimited number of infrared-based devices, including a DVR (digital video recorder), satellite or cable box, DVD player, television, etc. iGi's claim isn't a classic case of Company X exaggerating its product's abilities, either.

After attaching the matchbook-sized IRB1 to my iPod touch and downloading and installing iGi's accompanying i-Got-Control app (free) from Apple's App Store, within roughly five minutes I was controlling my DVR, DVD player, and TV via virtual remote control buttons displayed on the touch.

Although I still can't decide if such ability is worth the nearly $70 the adapter costs, there's something undoubtedly awesome about walking into any room in my home and having control over the IR devices in it from one device. That power can also carry over to hotel, meeting, and conference rooms and even pubs and restaurants (if you dare).

What's admirable about the IRB1/i-Got-Control combo is how easy it is to set up, thanks primarily to a database of thousands of device codes that are integrated into the adapter covering home-theater components and other infrared-based devices, even home lighting systems. The ease of use also greatly benefits from the app's minimalistic design. Particularly nice are the spinning, touch-enabled Device (TV, DVR, stereo, etc.) and Manufacturer menus you'll use to create virtual remotes for your equipment. Combined with the database, the use of menus means there's no programming to do on your part. There are also no Wi-Fi connections to hassle with, and because the

IRB1 with i-Got-Control App
$69.95; app free
iGi
(805) 277-9675
i-got-it.com

adapter draws power from the Apple device it's connected to, there's no need for batteries.

To enable my iPod touch to remotely control (up to 30 feet) my DVD player, for example, I clicked Add In i-Got-Control to create a new remote control profile. I then used the menus to select DVD and Panasonic and clicked Start Search. The app went to work automatically "learning" the appropriate device code for my Panasonic DVD player model. Green and red LEDs on the adapter indicate success or failure, and a Test Power button lets you try the code before saving settings. If the database doesn't turn up a match, the IRB1 can still learn the code via a process that involves pointing the original remote at the adapter. This same process also helps the IRB1 learn specific button commands, such as displaying your DVR's list of recorded shows.

The setup also impressed me in several other areas. For example, iGi states that each virtual remote control you create with i-Got-Control only takes up 50 bytes of space on the Apple device it's connected to. Thus, even if you created profiles for hundreds of remotes, you'd only expend a tiny amount of overall space, iGi claims. Also impressive is the app's slick Master Volume function, which pertains mostly to home-theater systems in which audio from all components is played through one component, such as the TV's speakers or A/V receiver's surround-sound speakers. With Master Volume, you can control the system's volume from any remote page for the various system components. A System PWR button, meanwhile, lets you simultaneously turn on and off a group of select devices.

Display-wise, for each virtual remote you create, i-Got-it provides two virtual Remote pages that essentially ape the button layout of a component's real-world remote. One page mimics a remote's top half and the other page the bottom half. Additionally, for each profile, i-Got-Control provides 12 customizable macros to do such things as jump to a favorite channel or open a movie pay-per-view menu.

If I have any gripes, it's that the IBR1 might be a tad overpriced and the adapter didn't provide the snuggest of fits with my iPod touch, as it didn't take much jostling for the adapter to partially dislodge from the touch's port. If you're an iPhone owner hoarding scads of remotes for equipment, however, you may find $70 perfectly acceptable. ∎

Head-To-Head: Keyboards & Mice
Find The One That's Right For You

If you work in a home office setting, you may need a keyboard and mouse setup that fuels productivity. Or, maybe you want an entertainment-based setup for Internet and media. On the other hand, you may only use your computer occasionally or travel regularly with a laptop. With so many unique needs, it's comforting to know there is variety when looking for a mouse or keyboard. This month, we'll take a look at keyboards and mice from Logitech, HP, Kensington, and Microsoft.

Logitech Wireless Desktop MK700

The MK700 is a keyboard and mouse combination that provides comfort and customization through its design and software. The mouse has some weight to it, and its curved design allows it to fit in your hand comfortably. This particular mouse has two features that make it stand out. The first is a programmable button with a magnifying glass symbol on it that gives you instant access to your preferred search engine, which can be mapped with the included SetPoint software. For instance, you can set it to automatically call up Google (www.google.com) in a browser window when you press the button. The second standout feature is the adjustable scroll wheel. With the MicroGear switch on the bottom of the mouse, you can set the wheel to either freely roll for quick scrolling through long documents or use the

same ratcheted effect that most wheels use for more controlled scrolling. We found that we could scroll through a 30-page document in about two seconds, assuming the pages could load fast enough.

The keyboard sports a thin design that can be set to lie flat or at a four or eight degree angle using the kickstands. There is a padded wrist rest built in that helped make typing comfortable even when we used the keyboard for a long period of time. The keys are responsive and quiet. The keyboard has a small LCD screen that provides battery life, CAPS LOCK, and other indicators. It has multiple programmable buttons that can be customized to do anything from open Word to eject a disc from your CD drive. We used the SetPoint software to customize our keyboard to automatically disable keys that are often mistakenly pressed as well as map out the hotkeys. The amount of customization available via the software is impressive and would be perfect for anyone who prefers having a personalized keyboard setup.

HP Wireless Elite Desktop Keyboard & Mouse

The HP Wireless Elite Desktop is a great option for those who want a simple wireless keyboard and mouse setup. It comes with software that we recommend installing because it is the only way to keep track of the amount of battery power left in the devices.

The mouse is glossy and black with three buttons and a scroll wheel. It feels solid and comfortable in the hand. The mouse is small enough (about the size of a mobile flip phone) to be portable if you want to use it with a laptop away from home. We liked the simplicity of it and that it can be used by left-handed or right-handed people without any trouble. The keyboard's configuration and key design allow for quiet and responsive typing. It has music playback keys as well as some hotkeys that only work with HP TouchSmart PCs. Because of the thin design, this keyboard would work well as a portable alternative to a laptop's built-in keyboard.

The only minor gripe we have with this product is the USB receiver. Every time the receiver and keyboard or mouse communicate (when you move the mouse or type a letter, for instance), a bright blue light shines from the receiver. It can't be turned off, and we found it a bit distracting. Aside from that, the Wireless Elite Desktop is a great wireless keyboard and mouse combo that doesn't have many extra features but works well.

Kensington Pro Fit 2.4 GHz Wireless Desktop Set

If you frequently use the Internet, the Pro Fit Wireless Desktop Set has many features you will love. The mouse has two buttons on the side where your thumb rests that let you go

| HP Wireless Elite Desktop Keyboard & Mouse | Logitech Wireless Desktop MK700 |

back and forward in your browsing history. The keyboard has hotkeys that will lead you to your email, take you to your home page, or even refresh the page you're currently viewing. We liked the convenience this offered and appreciated that any email service can be configured to the email hotkey.

The mouse feels great in the hand. Even though it is larger in size, it is designed so your hand can rest comfortably on it. The keyboard has rounded edges and extra space built around the keys. We were impressed by how quiet the keys are; it's possible you wouldn't even be able to hear them in an environment with constant sound. The board doesn't have any indicators for CAPS LOCK or NUMBER LOCK, which could be a minor inconvenience for those who accidently press these keys on a regular basis. It also has Sleep, Wake, and Power buttons so you can control your computer's power directly from the keyboard. Kensington has built an Internet-optimized keyboard with features that add not only functionality but also convenience.

Microsoft Arc Keyboard

Ergonomics and posture have become hot topics in office environments, and they are also important at home. The Microsoft Arc keyboard has a curved design and easy-to-press keys to reduce stress on your wrists and fingers. It took us awhile to get used to typing on it but once we did, it

felt comfortable and kept our hands in a more natural position.

One interesting design choice for this keyboard was to remove individual Arrow keys and, instead, have a single button that can be pressed in four directions. At first it was difficult to use, and our cursor often moved in the wrong direction or didn't move at all. We eventually learned how to use it correctly, but for some it may be frustrating in

BUYING TIPS

- **If The Mouse Fits . . .**
  Pay attention to the size and weight of the mouse. Remember that wireless mice are generally heavier than wired ones due to batteries. You may want to try a floor model at a retailer before committing to a mouse for the next few years.

- **Compatibility**
  The most important thing to think about when buying a keyboard or mouse is compatibility. If you're looking for Bluetooth devices, make sure your computer has that capability. It's also important to check for OS (operating system) compatibility. The box or online product description should tell you whether the product is compatible with different versions of Windows or with Mac computers.

the beginning. In order to use the F7 through F12 keys, you need to use the Function (FN) key. The Function key also allows you to turn the keyboard on or off by pressing it and ESC at the same time. It should also be mentioned that the Arc doesn't have a number pad.

We were impressed by how small the Nano Transceiver is and liked that it can be stored under the keyboard in a magnetic compartment. The Arc is for people who want simple functionality in a small, stylish, package. And for those who like options, it comes in black or white and lime green.

Microsoft Wireless Mobile Mouse 3500

Some people don't like using their laptop's touchpad, but it may not be feasible to have a full-sized mouse with them at all times. The Wireless Mobile Mouse 3500 is highly portable and comes with a Nano Transceiver, like the Arc keyboard, that can be kept in your laptop at all times or taken out and stored in the bottom of the mouse. It has an indicator light on top that doesn't light up unless the mouse was just turned on or the battery is low.

Microsoft claims that the mouse's BlueTrack technology lets you use it on almost any surface you can imagine except for glass and mirrored surfaces, and from our experience, this is a valid claim. We were surprised to find that the BlueTrack technology worked so well that the mouse could even be used on carpet.

Kensington Pro Fit 2.4 GHz Wireless Desktop Set

Microsoft Arc Keyboard & Wireless Mobile Mouse 3500

Keyboard and mouse sold separately

The mouse was highly responsive and accurate on the surfaces we tested, and in most cases, functionality wasn't affected.

If you travel regularly or you want an alternative to your laptop's touchpad, the Mobile Mouse 3500 would be a good choice for you. It comes in black, but there are many more colors available, such as Poppy Red, Sea Blue, and Imperial Purple as well as patterns such as Geode, Wave, and Folk. (Note that some of these special editions are only available at specific retailers.)

Weigh The Options

There are many choices when it comes to buying a keyboard, mouse, or combo. If you want simplicity, you may opt for the HP Wireless Elite Desktop. If you want customization or Internet hotkeys, the Kensington Pro Fit 2.4 GHz Wireless Desktop Set or Logitech Wireless Desktop MK700 would be perfect. If style and portability are important to you, the Microsoft Arc keyboard and Wireless Mobile Mouse 3500 are two options to look into. ❚❚

BY JOSH COMPTON

PRODUCT INFORMATION

	Price	Company	Company Contact	URL	Batteries	Notable Features
Wireless Desktop MK700	$99.99	Logitech	(800) 231-7717	www.logitech.com	Mouse: 2 AA Keyboard: 2 AA	The keyboard's customizable function keys are convenient for accessing applications. The mouse's MicroGear scroll wheel is great for scrolling through long documents.
Wireless Elite Desktop Keyboard & Mouse	$79.99	HP	(800) 289-6947	www.hp.com	Mouse: 2 AA Keyboard: 2 AAA	The Wireless Elite Desktop is perfect for people who want a simple keyboard and mouse with wireless capabilities. There are a few extras for those who own HP TouchSmart PCs.
Pro Fit 2.4 GHz Wireless Desktop Set	$49.99	Kensington	(800) 235-6708	www.kensington.com	Mouse: 2 AA Keyboard: 2 AAA	The mouse design feels comfortable in the hand, and the keyboard's Internet hotkeys make moving around the Web faster.
Arc Keyboard	$59.95	Microsoft	(877) 696-7786	www.microsoft.com	2 AAA	The Arc keyboard is small and portable. The curved construction is ergonomic, and the Nano Transceiver is almost unnoticeable.
Wireless Mobile Mouse 3500	$29.95	Microsoft	(877) 696-7786	www.microsoft.com	1 AA	The 3500 is a mobile mouse with BlueTrack technology that can be used on many surfaces and has a Nano Transceiver that can be stored in the bottom of the mouse.

Remotely Connect To Your Office PC
LogMeIn

Free - $69.95 per year | LogMeIn
(800) 866-1805 | www.logmein.com

WinXP Vista Win7 Mac OS X

If you've ever lugged a laptop on vacation because you invariably need access to a program or file, next time give LogMeIn a spin instead. This Web-based remote access service makes it as easy as one could imagine to run a home or office computer remotely.

Like similar services, LogMeIn requires that the host computer be on, Internet-connected, and running LogMeIn before you can access it. Beyond that, you can run all remote operations through any Internet-connected PC with a Web browser). All data exchange is protected by end-to-end, 256-bit SSL (Secure Sockets Layer) encryption, so you are even safe at a Wi-Fi hotspot.

Best of all, LogMeIn is free for basic remote access, which lets you open applications and their files remotely. If you want to exchange files, print to a local printer, enable others to access your remote PC, and more, bump up to LogMeIn Pro2 ($69.95 per year for one computer; free trial offered). Small business users can add more PCs (and an array of extra services) on a scalable basis.

In Use

Setting up LogMeIn on the host PC takes all of two minutes. You create an account and provide LogMeIn with your PC's username and password (so it can log in to the PC if the account is locked). In most cases, LogMeIn will even be able to manage the firewall settings for you.

Running the remote PC requires nothing more than opening a Web browser, although LogMeIn may prompt you to install a plug-in for your browser. If you're at a business center that won't let users install anything, you'll be fine with the default Java-based interface. However, if you are running LogMeIn from your personal laptop or other PC you control, you'll have a richer experience if you install the module.
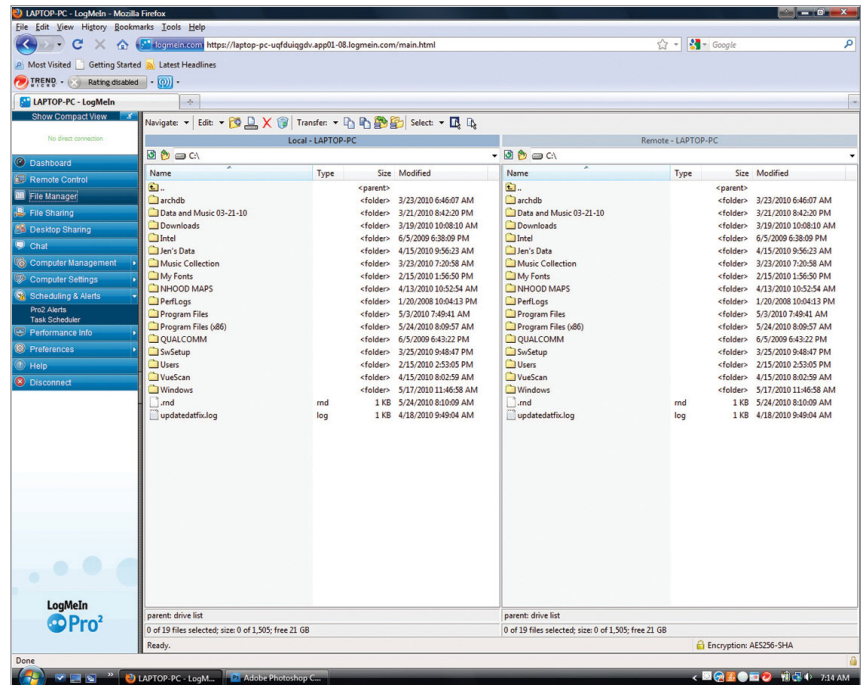
Once you reach the LogMeIn Web site, you'll be prompted to log in and can then select the PC to access. An interface will pop up, prompting you to supply your PC username and password, and LogMeIn will make the connection. While you are working, a control panel will appear on the left side of your screen, giving you access to the features included with whatever version of LogMeIn you are using. When you are done, click the Disconnect button, and all traces of your activity are cleared.

More Control

From your LogMeIn account, you can control security features for the connection, including options to

Key Features: LogMeIn is easy to set up on both the host and remote computers, all data is fully encrypted during the exchange, and a variety of pricing plans fit all users.

require an emailed security code before giving access and notifications if anyone logs into your host PC (or fails to do so) or makes changes to your account.

LogMeIn offers a plethora of additional services that start at $39.95 per year, including remote backup.

Features targeting business users are remote networking, and remote PC rescue.

One caveat you should remember, not only with LogMeIn but with any service of this type: Your access is only as fast as your Internet connection. Other than that, there is nothing for us to warn you about. This service works well and will be a boon to many traveling PC users. ▮

BY JENNIFER FARWELL

File Compression & Encryption
WinZip Pro 14.5

WinXP Vista Win7

Key Features: Powerful compression utility supports wide assortment of archive types, offers maximum lossless compression; Pro incorporates backup and image viewer.

Long an industry standard for file compression and decompression, WinZip has been a must-have for Windows users for years. Many users employ it to decompress archives automatically and never consider the benefits they would enjoy by purchasing the full version.

With WinZip Pro (the edition we tested), you gain not only the zip/unzip functions of WinZip Standard, but also a fully functional backup utility and a nice, if basic, image viewer/editor that works within zipped archives. If you don't need these two functions, the Standard edition of WinZip is $29.95. (WinZip plus backup is $39.95.)

No matter which edition you choose, you'll be able to compress and decompress into nearly all available formats and the smallest file possible, including multi-part archives and extra large file handling. Zipping and emailing an archive takes only a couple of clicks, with WinZip helping select optimal compression, resizing images with no loss of quality, and securing the archive with Department of Defense-standard encryption.

WinZip opts you in for elements (Google Chrome browser and the WinZip improvement program) you might prefer to skip (you can). Nevertheless, there is no doubt this is a high-quality utility. A generous 45-day trial will give you plenty of time to test drive it. ▌
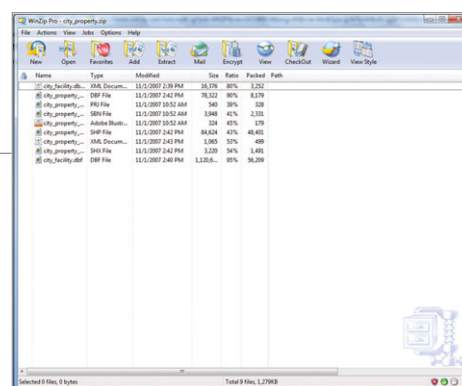
BY JENNIFER FARWELL

Powerful PDF Reader
Nitro PDF

WinXP Vista Win7

Key Features: Feature-rich PDF creation and management features using the now-familiar Windows "ribbon" interface.

Adobe's PDF (portable document format) files have become so commonplace now for tax forms, Web documents, and other files that many of us don't even think about them. However, Adobe's competitors retain their focus on this popular format and continuously raise the bar for features they offer at little or no charge.

With the release of Nitro PDF (in beta when we tested it), the makers of the even more powerful Nitro PDF Professional have given users a surprising array of functions. With Nitro PDF, you can create, annotate, and mark up PDF files; fill out forms and then save them; add signatures; and more. Markup functions include highlight, cross-out, and underline, or you can supply comments via digital sticky notes.

Nitro PDF supports more than 300 file formats for conversion to PDF. The use of a Microsoft Office Ribbon-style interface also makes the program exceedingly easy to use, with operations such as Extract Images, Extract Text, Create From File, and Add Note clearly marked on large buttons.
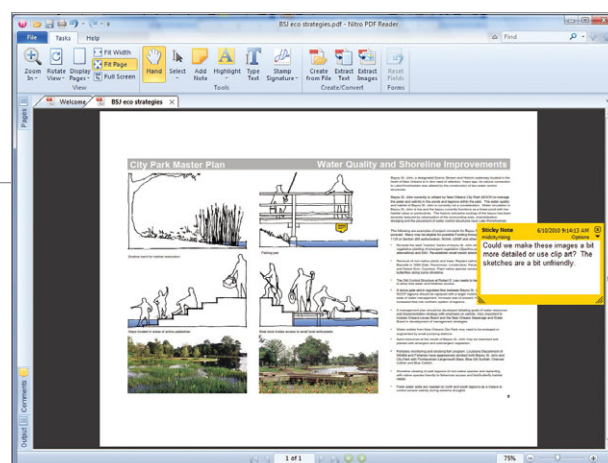
You can even type text directly onto a page without creating a form. ▌

BY JENNIFER FARWELL

News, Views & Tips

Compiled by Joseph Moran

Microsoft News

Web-Based Office 2010 Goes Live

Microsoft has launched the Web-based version of Microsoft Office 2010, dubbed Office Web Apps on SkyDrive. Anyone with a browser and an Internet connection can get free access to online versions of Microsoft Word, Excel, PowerPoint, and OneNote at office.live.com to do basic document creation and editing (a Windows Live account is also required).

Users of Office Web Apps on SkyDrive can save or upload 25GB worth of documents.

Bing Cashback Program Comes To An End

Microsoft is scrapping Bing Cashback, a program that provides cash rebates to searchers who find and purchase products through Bing. The company chalked up the decision to end the program to a lack of "broad adoption."

The Bing Cashback program officially ends at 9 p.m. PST on July 30; Microsoft will continue the program's customer support for 12 months, and users can continue to redeem any existing credits during that time. For more details, see the FAQs at tinyurl.com/2fke4z3.
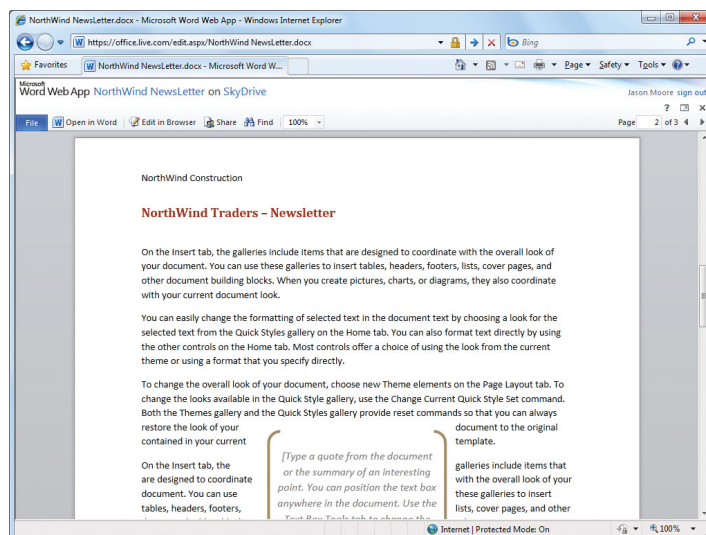
With Office Live Web Apps on SkyDrive, you can create or edit Microsoft Word, Excel, PowerPoint, or OneNote documents from within a Web browser.

Xbox 360 Console Revamped

After nearly five years of relatively minor tweaks, Microsoft's Xbox 360 game console has received a major overhaul inside and out. The new Xbox 360 is smaller and consumes less power than its predecessor and sports a more angular case with a glossy black finish. The redesigned console, which carries a $299.99 price tag, also includes built-in 802.11n Wi-Fi and a 250GB hard drive. A less expensive $199 version is also expected to debut by fall (presumably with less storage and perhaps sans Wi-Fi).

Microsoft also announced an official name and release date for its Xbox 360 hands-free motion controller, previously code-named Project Natal. The new Kinect will ship on Nov. 4. An official price has not been announced, but Microsoft's current estimate is $149.99 for the standalone price tag.

The redesigned Xbox 360 packs more features and storage into its compact case than its predecessor; the Kinect motion controller will debut Nov. 4.

Windows News

Deadline Looms
For WinXP On Netbooks

If you're in the market for a netbook with Windows XP, you'd better act fast; as of Oct. 22, 2010, manufacturers will no longer be allowed to preinstall WinXP on netbooks.

Although Windows 7 is now the predominant operating system on netbooks—Microsoft says 81% of U.S. retail netbooks sold in April 2010 shipped with Win7—WinXP-based netbooks remain somewhat common for a number of reasons, one of which is that they're often a bit less expensive than equivalent Win7-based models.

Also, many Win7-based netbooks come with Starter Edition, which lacks certain features WinXP users take for granted, such as the ability to customize the Desktop with wallpaper, colors, or sounds, or switch among users without having to log off.

Win7 Service Pack 1 Coming Soon

Win7's first service pack is on the horizon—private beta testing is underway, and a public beta should be available for download by the end of July. Win7 SP1 won't deliver any new features or capabilities, though—according to Microsoft, it will consist mostly of updates and patches previously made available through Windows Update.

Windows Tip

Create A Print Folder Listing Option In Windows XP/Vista/7

Do you want an easy way to print a list of files inside any folder? The following steps will ensure the ability to do so is always a right-click away. (The process is slightly different for WinXP and Vista/Win7; we'll start with WinXP.)

The first step is to create a batch file to print a folder's contents. To do this in WinXP, click Start and Run, type **notepad**, and press ENTER. Then, type the following into the notepad window:
**echo off
dir %1 /-p /o:gn > "%temp%\Listing"
start /w notepad /p "%temp%\Listing"
del "%temp%\Listing"
exit**

Then, click File and Exit and opt to save the changes. In the Save As box, type **%windir%\printdir.bat** as the file name and click Save.

Next, we need to configure the batch file as a right-click action in WinXP. To do so, click Start and Control Panel and then double-click Folder Options (in Classic View). On the File Types tab, highlight the File Folder entry, then click the Advanced button. Now click the New button, and in the Action box, type **Print Folder Listing** and then in the Application Used To Perform Action box, type **printdir.bat**. Click OK twice and then click Close.

Finally, open Registry Editor (click Start and Run, type **regedit**, and press ENTER). Back up the Registry by highlighting My Computer and then clicking File and Export. Find the key labeled HKEY_CLASSES_ROOT\DIRECTORY\SHELL, highlight it, and double-click the (Default) entry in the right-hand pane. In the Value Data box, type **none**, click OK, and close Registry Editor.

In Vista or Win7, you must run Notepad as an administrator in order to save the batch file in the proper location. To do so, first type **Notepad** in the Start

Search field. Then right-click Notepad and choose Run As Administrator. (*NOTE: If you're not already logged in with an administrator account, you'll be asked for a password. Changes you'll make later require administrative rights, so if you see this request, log out and start from an administrator account.*) Once Notepad is running, create and save the Printdir.bat file in Notepad just as described for WinXP.

Next, search for and run regedit from the Start menu, back up the Registry, and then find the key labeled HKEY_CLASSES_ROOT\DIRECTORY\SHELL. Right-click Shell and then choose New and Key. Replace the New Key #1 text with Print Folder Listing and press ENTER, then right-click the new Print Folder Listing key and again click New and Key. Name this key Command and press ENTER. With the Command key highlighted, double-click the (Default) entry
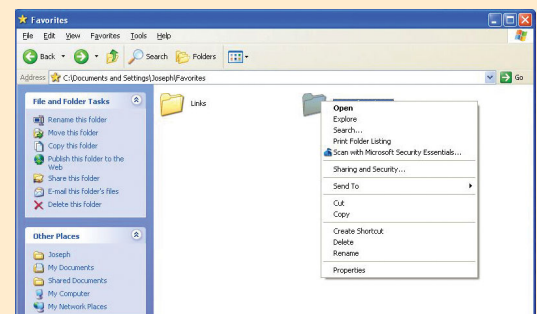
With a batch file and a couple of setting and Registry tweaks in WinXP/Vista/7, you can configure a new right-click option to print any folder's list of contents.

in the right-hand pane, and in the Value Data box, type **printdir.bat % 1**, click OK and then close Registry Editor. Upon completing the steps outlined above, you'll find a new Print Folder Listing option when you right-click a folder in Windows Explorer. (When you use the new option, you may momentarily see a window pop up and disappear as the folder contents are sent to your printer.) ▌

Windows XP
Clean Up The Taskbar & Start Menu

To move a program in the Start menu to the pinned list, right-click it and select Pin To Start Menu.

Regardless of whether you're a novice or professional Windows user, you'll regularly access programs and system tools from the Taskbar. When the Start menu and Notification Area (which are part of the Taskbar) begin to feel unorganized or annoying to you, that means it's time to do a little cleaning. In our tutorial, we'll identify the different components in the Taskbar, help you customize the Start menu, and show you how to remove unwanted programs from the aforementioned areas.

A Taskbar Refreshment

The Taskbar helps you manage and monitor applications. We'll introduce you to the Taskbar features so you can familiarize yourself with each element before making adjustments.

Notification Area. Also known as the System Tray, the WinXP Notification Area contains icons that represent programs and system functions that are running in the background. You will receive pop-up notifications occasionally when a program requires your attention, such as when Windows needs a system update or your antivirus program alerts you to a potential threat. Rarely used icons in the System Tray are automatically hidden in order to keep the Taskbar simple to access. To view both inactive and active icons, click the arrow to the left of the Notification Area.

Taskbar buttons. The Taskbar is a virtual filing cabinet in which your documents, programs, and other open applications are stored while in use. If you experiment with each Taskbar window, you'll find that you can minimize and maximize the corresponding window with a single click of its minimized window. The more applications you open, the greater the number of minimized windows. Each window will decrease in size to accommodate for another window, but once you run out of space along the Taskbar, the minimized windows collapse into a single Taskbar menu with a label indicating the number of open items. These menus are grouped by folders or programs. Closing a program window will move the minimized windows back to their original, singular organization.

Start menu. The Start menu groups your habitually accessed programs and system folders such as My Computer, Control Panel, and Help & Support. The left side of the Start menu features two main sections: the pinned list at the top and the MFU (Most Frequently Used) list at the bottom, divided by a translucent line. Specifically, the pinned list includes program shortcuts that remain permanently in place, so you can access them efficiently when you open the Start menu. You can use the MFU list to keep track of the programs and applications you use most often. The most used are positioned at the top of the MFU list and the least used at the bottom.
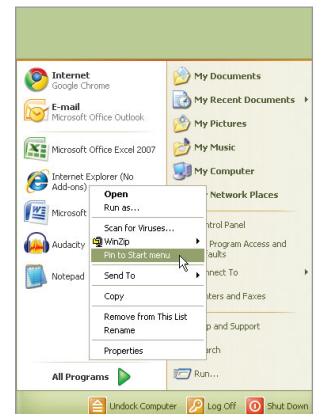
Quick Launch. The Quick Launch bar sits adjacent to the Start button by default. This tool lets you open programs with one click, so you don't have to double-click any icons on the Desktop or open them in the Start menu. When you install new programs, sometimes the installation wizard will ask if you want to add a shortcut to the Quick Launch bar. It's a convenient option until the bar gets too cluttered, so manage it wisely. The Quick Launch bar also includes the Show Desktop icon, the quickest way to reveal the Desktop aside from
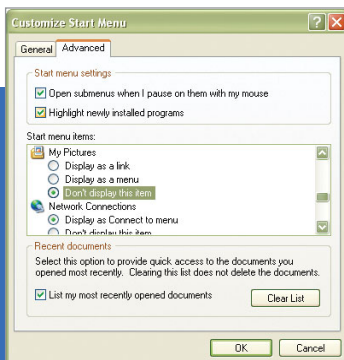
If you don't want to see certain programs or folders in the Start menu, you can remove them by clicking Don't Display This Item in the Customize Start Menu dialog box.

pressing the Windows logo and *D* keys simultaneously.

Customize The Start Menu

In this section, we'll focus on the Start menu customization options, such as sorting preferred programs, adding submenus, and pinning frequently used programs.

Sort programs. To reorganize the programs in the All Programs submenu, right-click Start, select Properties, click the Customize button, select the Advanced tab, and place a check mark in the Enable Dragging And Dropping option in the Start Menu Items section. Click OK, Apply, and OK. Now, you can go into the Start menu's All Programs list and click and drag a menu item wherever it's allowed to be placed on the list.

Add submenus. Submenus will help you group programs into files for easy reference. To create a new submenu, right-click Start and select Open. In Windows Explorer, select File, New, and Folder. Name the folder and press ENTER. When you reenter the All Programs list in the Start menu, the new submenu will automatically appear near the top of the list.

The Taskbar helps you manage and monitor applications.

Pin favorite programs. Pinning a program bypasses the All Programs menu and opens a program in two mouse clicks. To do this, click Start and All Programs. Right-click the program you would like to pin and select Pin To Start Menu; this places it in the pinned list at the top of the Start menu. In order to remove a currently pinned program, go to the item that's listed in the pinned list, right-click it, and click Unpin From This List.

Remove Unwanted Programs

If you've noticed that there are several programs in the Start menu you've never opened or consistently avoid because they're "in the way" of other, more frequently accessed programs, it might be time to reorganize the entire menu. The best way to take care of this task is to remove or hide program icons from the Start menu. There are several methods by which you can accomplish your Start menu cleanup, but two of

them are more efficient than the alternatives.

Remove programs from Start menu. Right-click the Start menu and click Open. The Start menu Programs folder will appear in Windows Explorer. Double-click the Programs folder, and you'll be able to view programs listed in the Start menu as well as the Accessories and Administrative Tools folders. To remove a program, click to select the application you would like to remove and press the DELETE key. Windows will ask you if you'd like to send the application shortcut to the Recycle Bin. Click Yes. If you prefer to choose which programs you'd like to remove as you scan the Start menu, you can simply remove a program by right-clicking it and selecting Remove From This List. You may only remove items that are in the pinned list or the MFU list.

The seemingly permanent system tools and folders listed on the right side of the Start menu don't have to take up space if you don't want them to. To remove

these programs, right-click the Start button and select Properties. Click the Start Menu tab and then the Customize button. In the Customize Start Menu dialog box, select the Advanced tab. Under Start Menu Items, you'll see a list of folders, checkboxes, and system tools. You can hide particular items from the Start menu when you click Don't Display This Item under the following items: Control Panel, My Computer, My Documents, My Music, My Pictures, Network Connections, and System Administrative Tools. To finish, click OK and then click Apply and OK in the Taskbar And Start Menu Properties dialog box.

Remove programs from Notification Area. Right-click an unoccupied area of the Taskbar and select Properties. In the Taskbar tab, click the Customize button in the Notification Area box. The Customize Notifications box will open listing the items currently displayed in the Notification Area. Click an item under Behavior to see a drop-down menu that gives you the option to Always Hide the item if you don't want to see any notifications from a particular tool. ▌▌

BY JOANNA SAFFORD

You have the option to always hide notifications in the System Tray. To modify Notification Area settings, click Customize in the Taskbar And Start Menu Properties dialog box.
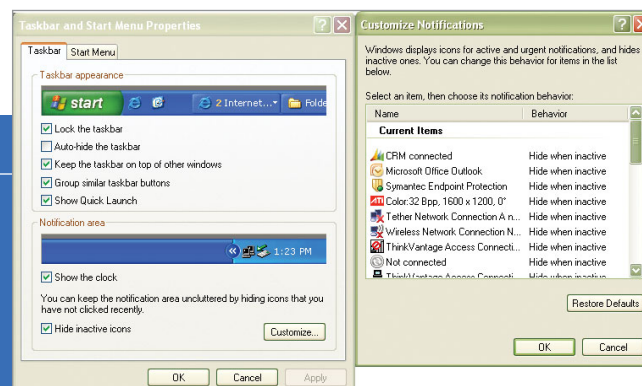
Windows 7
Parental Control Options

Computers have become essential in the daily lives of most children. Whether it is for school, games, or social networking sites, kids are constantly using computers. It may seem difficult to control what your child sees online or to set guidelines for how often your child uses the computer, but parental controls are available to help make your job as a parent easier.

Older versions of Windows have some parental control options, but Windows 7 has simplified the process of setting the controls while increasing the customization you can achieve. If you want to learn how to set time limits for computer usage and control what games and programs your child can use, then follow along, and we'll show you what each feature does and how to personalize it for individual accounts.

Getting Started

You have probably set up a user account for yourself that has administrator status, but if you haven't, do so now. Click Start, open the Control Panel, and click User Accounts And Family Safety, User Accounts, Manage Another Account, and Create A New Account. From here, you can create a new user account and set it to Administrator. Click Create Account. Moving forward, make sure you are logged in to the Administrator account so you have the ability to customize settings for Standard accounts.

Next, go back to the User Accounts And Family Safety page and click Parental Controls. Click Create A New User Account and set up accounts for each child you want to be able to monitor. Each new account will automatically appear as a Standard user and can be set up to have passwords attached to them. Give each account a password to ensure that the accounts stay separate and so that the settings applied to each one will fit the user that has access to it.

Each account will allow the user to personalize the Desktop and adjust settings that aren't controlled by the administrator. This lets the user load his account without having to change his settings each time he logs in.

Customize The Controls

When all of the necessary accounts have been created, you'll be ready to customize the parental controls for each one. Click the account that you want to apply settings to and then select On, Enforce Current Settings under Parental Controls. Once you've activated the controls, you'll be able to change the settings below Windows Settings by clicking Time Limits, Games, or Allow And Block Specific Programs.
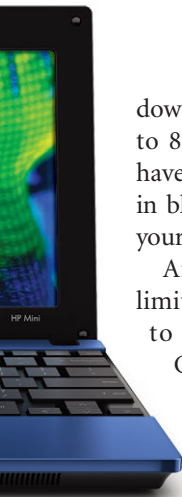
Start by clicking Time Limits. In the resulting chart, you can set time limits for specific days of the week by clicking and dragging the mouse cursor over those days and times. This lets you control the time periods in which the child will be allowed to use the computer. For instance, if you don't want your child to access the computer between the hours of 5 p.m. and 8 p.m. on Monday through Friday, click the box that corresponds to Monday at 5 p.m. and drag your mouse
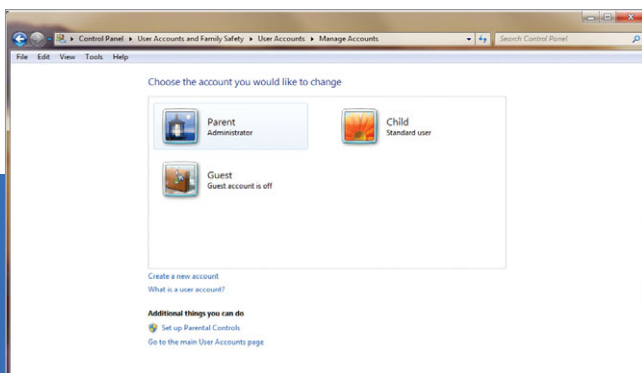
When setting up parental controls in Windows 7, creating accounts for each user is necessary so that separate settings can be applied to each account.
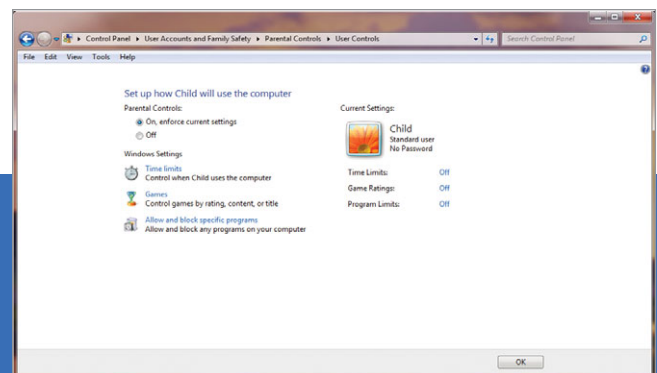
The parental control settings in Windows 7 are clearly labeled and provide a brief description of what can be adjusted.

down to Friday and over to 8 p.m. The time you have blocked will appear in blue. Click OK to save your changes.

After you've set time limits, you can move on to the next setting: Games. You can decide whether to allow the account to play games and, if you allow it, select the ratings (based on the ESRB [Entertainment Software Rating Board] system) that are suitable for the user. You can also block games that have certain types of content, such as alcohol references, language, or violence. The final steps for this setting are to click Block Or Allow specific games, run down the list of installed games, and block or allow them separately. If a game doesn't show up on the list, it can be added manually.

You can also adjust settings that control access to the programs on the computer by clicking Allow And Block Specific Programs. You can choose to allow all programs, or, as with the Games settings, select individual ones. This is a good way to make sure the child is only using the programs that you approve of, and it's also a good safety net to ensure that the child doesn't accidentally access and alter any sensitive files that may be on the computer, such as Quicken files.

You can adjust these settings any time, but only if you are logged in as the administrator. The settings you configure will go into effect as soon as the user logs in to his account.

Deeper Monitoring

So, you're done setting up parental controls, and you realize that there were no settings specifically for Internet usage. Luckily, you can visit Microsoft's Web site (www.microsoft.com) and install Windows Live Family Safety free. It is offered as a standalone program or included with an entire suite of applications called Windows Live Essentials. Windows Live Family Safety lets you set Internet parameters for individual accounts similar to how the parental controls are set. One of the most helpful features it has to offer is the ability to monitor computer and Internet usage when you are on a different computer or away from home. To download the Windows Live Essentials suite, go to tinyurl.com /2djztl2. To download Windows Live Family Safety for just the parental control add-on, visit tinyurl.com /y8qs7rt.

Once downloaded and installed, you can access the program by going back to the Parental Controls section of the Control Panel. Under Additional Controls, select a provider from the drop-down menu (in this case, Windows Live Family Safety should be selected). Now, you will be ready to set up the Internet monitoring features that the program has to offer.

Start by selecting the account you want to make changes to; you will be asked to sign in using a Windows Live ID. (If you have a Hotmail, Messenger, or Xbox LIVE account, you can sign in with that, but if not, you can easily create a Live ID from this screen.) On the next screen, select the Monitor Account checkboxes next to the accounts you want to monitor using Family Safety. Click Next. On the next screen, you must match the Windows accounts with the name of the Family Safety members and then click Save. Now, you can specify the settings for each account.

Select an account and click Windows Live Family Safety under More Settings; you are sent to a Web site where you can sign in and access the settings you want to customize. Click Web Filtering and add Web sites that you want to be allowed or blocked; Activity Reports to see what Web sites the account has visited, what games have been played, and how much time was spent on the computer; Contact Management to manage the account's contacts; or Requests to approve or deny Web site and contact requests that the user of the account has made. From this screen, you can repeat this process for each account by selecting the account name under Family Members; you will be able to save your changes made to each account before signing out.

Put It All Together

By combining the parental control settings built into Win7 with the optional Windows Live Family Safety settings, you can oversee almost all of the computer activities of your children. From games to Internet usage, you can have peace of mind knowing that your family can safely use the computer with just the right amount of freedom. ▮

BY JOSH COMPTON
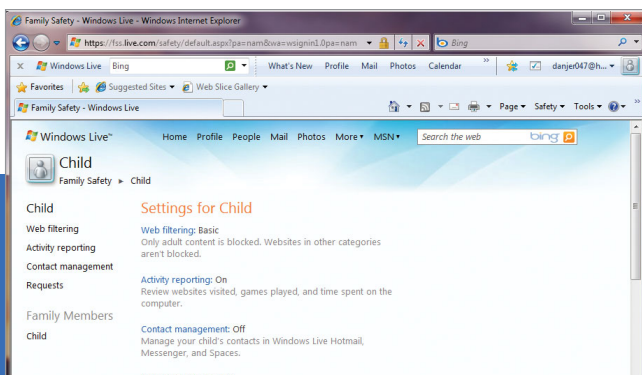
The Windows Live Family Safety Web site gives you monitoring capabilities to keep track of what your children are doing online.

Check Out The
Tech Support Center!

Tech Support Center

Error Messages

Solutions Knowledgebase

Basic Troubleshooting Articles

Security & Privacy

How To Get Rid Of

Backups & Data Recovery

Preventive & Regular Maintenance

Networking & Communications

Articles On How To Install ... Just

The Tech Support Center at SmartComputing.com has always been the place to find helpful information for all of your computing troubles. Check out the Networking & Communications area to find out how to install and configure your home network properly. You'll find out how to set up your wireless network, fix wireless connection problems, and much more. Be sure to take a look at the Backups & Data Recovery section, as well. This area contains articles that explain the ins and outs of creating system backups, recovering lost data, and other backup basics. Check out these articles at SmartComputing.com's Tech Support Center today.

1. Go to SmartComputing.com and click the Tech Support Center link on the home page.

2. Click Backups & Data Recovery or Networking & Communications.

3. Click View ALL Backup & Data Recovery Articles or View ALL Networking & Communications

4. Click Articles to view articles within those departments.

Be sure to store all of your articles and information in your Personal Library to keep for future reference. Simply log in, and when you find an article you would like to keep, click the Add To My Personal Library link at the top of the page. Create as many folders as you like to keep your information organized and accessible.

Backups & Data Recovery

Every disk drive in existence will stop working one day; count on it. If a drive failure would be a major disaster in your life—or even just a terrible nuisance—move forward and back up.

Sample Articles:
Backup Basics
Data Recovery Basics
Create Emergency Boot Disks

View ALL Backup & Data Recovery Articles

Mina Rees

On August 2, 1902, computer pioneer Mina Rees was born. The *Smart Computing* Encyclopedia says Rees "did much in the fields of computing, mathematics, and mathematical education on a national level, not to mention advance the general status of women in the academic and technology fields throughout her career."

Back To Basics

Basic Troubleshooting Articles

We've assembled a comprehensive list of articles that start at square one and work you quickly through all fundamental checks and tests.

Sample Articles:
Troubleshooting Email
Troubleshooting Cable/DSL
Reinstall Windows

View ALL Basic Troubleshooting Articles
What To Do When...

Computer-related issues aren't always complex, and it's best to start the troubleshooting process from the very beginning. Brush up on basics by visiting the Basic Troubleshooting Articles section of the *Smart Computing* Tech Support Center.

Daily Dose

Get your daily fix of *Smart Computing* fun by checking out the Daily section of www.smartcomputing.com every, well, day. You'll find fun facts, stats, and more.

Smart Computing's
Fun Site Of The Day

Angry Chicken

This blog (angrychicken.typepad.com) from designer and crafter Amy Karol focuses on topics such as sewing, interior design, and cooking. You'll find a blend of personal anecdotes and helpful information here. You'll also find information about her professional life and items she has for sale.

Convert Slides To Digital Images

Different Tools Produce Different Results

Back in 1973, Paul Simon sang about the joys of Kodachrome slide film: "You give us those nice bright colors/You give us the greens of summers/Makes you think all the world's a sunny day, oh yeah!"

Simon knew what he was talking about. Kodachrome slide film, immensely popular with consumers and professionals alike from its introduction in 1935, produced sharp images; warm, natural tones; excellent contrast; and accurate colors. It became the world's most popular film and remained so until undone by the burgeoning popularity of digital photography.

In the song's chorus, Simon presciently laments (some would say *whines*), "Mama, don't take my Kodachrome away," even though the film would remain on the market for another 36 years.

But it *was* taken away, and stocks have now dwindled to almost nothing. In the meantime, you may have 20 or more years' worth of transparencies stashed in your closet. As the slides sit, unused and perhaps almost forgotten, they fade and buckle, and their mounts delaminate. In a few more years, entropy will have had its inevitable way, and they'll have disintegrated to the point that they're unusable.

Let's act before that happens. We'll show you several ways to convert your priceless slides to digital formats that will last for decades or even longer.

Select A Technique

There are several ways to make copies of slides. All boil down to creating a digital photo of the transparency and then cleaning up that digital image. We'll look at four fairly simple, reasonably affordable approaches.

Use a lens-attached copier. The old standby for copying slides and negatives is an attachment that mounts on your lens, and which includes an extension tube or bellows, an additional lens, and a carrier to hold the slide or film suspended in front of the lens. Simply attach the device to your camera lens (usually by threading it onto your lens's filter mount) in order to take pictures of the slides you insert into the carrier.

These are simple devices, and they work quite well. They're *so* simple, in fact, that you'll be tempted to make one yourself. And you may be able to, if you're patient and if you keep in mind that the physics involved can complicate the job.

First, you can't simply tape a slide to some sort of improvised carrier and then slap that onto the front of a typical lens. If you do, you'll usually discover that the slide is now much too close for the camera to focus on. So, your next logical step is to insert some sort of tube (such as PVC pipe or rolled black posterboard) between the lens and the slide carrier. You're thinking that this will hold the slide far enough out in front of the camera to be able to focus on it. And it will, with a bit of experimentation. But now you have a new problem: With the slide far enough away to focus on, it's too small to fill the frame; you end up with a vignette, in the middle of which floats your lonely slide.

The solution is to use a macro lens—either on the camera itself or added to the extension tube. (Or sometimes both.) This is why most of the commercial lens-attached copiers include a lens in the extension tube, and this is also why they're a bit more expensive than you might have expected: A new Bower (specialtyphotographic.com) or Opteka (opteka.com) lens-mounted copier goes for $60 to $90 or so. They work quite well and they're fast, so if you have dozens of slides to copy, it's a worthwhile investment.

Remember that in order to correctly expose your image, you'll need to point the camera at a light source; a sunlit patch on a reflective wall actually works quite well, because it avoids the harsh light and color casts associated with incandescent and fluorescent lights. If at all possible, use a small aperture, or lens opening, such as f16 or f22. A small aperture increases depth of field, which makes

focusing less critical. This is helpful, because a longer depth of field means that any curvature or buckling of the film will not throw portions of the image out of focus. (For more on depth of field, see the sidebar at the bottom of this page.)

A variant of this method is to place the slide on a filtered light source, such as a covered lamp or a light table, and then use one or more macro filters (you can find them at your local camera store or on the Web) to shoot the image. This often works quite well, but it may take some experimentation to figure out the correct lens/filter combination.

Shoot a photo of the projection. If you have (or have access to) a slide projector, it's possible to make an acceptable copy by projecting a slide onto a screen or piece of white posterboard and then using your digital camera to take a photo of the projected image. Two additional tools that you'll find helpful if you try this are a tripod and a cable release.

Set up your projection as you would normally, but be especially careful to ensure that your projector is pointed straight at the screen; if it's off at all,

This Bower lens-mounted slide duplicator is typical of the genre.

the slide's focus will be affected, and the problem will be exacerbated by the technique we're about to describe.

Place your camera and tripod at about the same height as the projector lens and just far enough off to one side that the projector lens doesn't cast the camera's shadow onto the screen.

Notice that no matter how careful you are, you're unable to point the camera straight at the projected image; that would be possible only if the camera were directly in front of the projector itself, which would, of course, block the image. Instead, the camera has a slightly different viewing perspective than the projector; that difference is known as parallax. Because

the camera is just a little closer to one side of the projected image than the other, it's more difficult to get both sides in focus simultaneously and also not easy to account for the differing perspective from one side to the other. That difference in perspective causes one side of the image to look just slightly "taller" than the other. Parallax can be minimized by keeping the camera as close to the projector as possible—again, watch out for any shadows. (Parallax is also minimized by increasing the projector/camera distance to the screen, but this can cause other issues, including an image that's too dim to photograph.)

You need the tripod and cable release because you'll want to use a fairly small aperture in order to maximize the depth of field. (Depth of field is the area in front of and behind a subject that remains in focus, and it increases as the size of a lens aperture decreases.) Maximized depth of field is important in this case because it means that any curvature or buckling of the slide will not affect the focus, at least from the camera's perspective. (Of course, if the slide buckles too badly, it may affect

When shooting a photo of a projection, minimize the distance (d) between the camera and projector in order to reduce parallax. Doing so helps account for the fact that one line ($n+\Delta n$) is longer than the other, because the camera's viewpoint—off to the side as it must be—cannot align exactly with the projector's cone of projection.
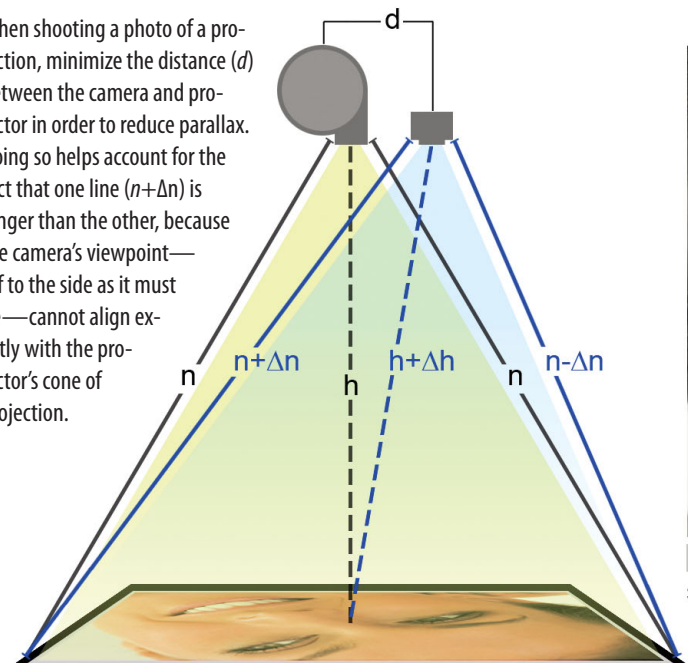
sharp focus   softer   out of focus

the *projector's* focus, so watch out for that.) The small lens aperture allows less light in, which results in slower shutter speeds, because the shutter must remain open longer in order to let in as much light as possible. A tripod and cable release will minimize any camera "shake" associated with that slower shutter speed.

Use a flatbed scanner. Slide and film feed attachments are available for many of the higher-end scanners. We used an Epson Perfection V600 photo scanner ($249.99; www.epson.com), which comes with attachments for both 35mm slides (the V600 will copy up to four slides at one time) and various film sizes. A simple device, the attachment consists of a frame that lies on top of the scanning bed; slides or film are inserted into the frame as it rests on the glass. The scanner includes an Epson application that controls the scanner itself, as well as ABBYY FineReader for optical character recognition and Photoshop Elements for editing and cleaning up scanned images.

Flatbed scanning devices with the appropriate attachments do an excellent

The Epson Perfection V600 photo scanner comes with a slide/film holder and software to manipulate images after the scan. Scans are lengthy, but results are excellent.

job of scanning slides, as long as you're not in a big hurry. A hi-res scan of one slide can easily take 30 minutes, and that's not counting any setup time prior to the scan or cleanup time afterward. Still, the Epson software will automatically scan and save up to four slides or negatives, and even perform some automated cleanup afterward. So, even though a good scan may take some time, it's actually a fairly efficient way to take on this sort of project. (The

V600 also does a great job scanning regular photos and text, of course.)

Use a freestanding unit. Dedicated standalone slide/film copiers are perhaps the simplest solution to the slide duplication dilemma. These units do only one thing: copy slides and film; they do it quickly, they do it well, and they do it without a computer.

We tried out a Vupoint FC-C520 standalone slide/film copier ($99.99; www.vupointsolutions.com) and got excellent results very quickly and with little work on our part. The unit was easy to set up, simple to use, and worked flawlessly. Just plug in the device and fit the slides (or negatives) into a plastic holder that slips into a slot on the right-hand side of the unit. Push the holder in until the slide is displayed on the LCD, press a button, and wait a few seconds. When it's time to copy the next slide, push the holder through the unit until the next image is displayed and push the button again. You can control the resolution and other settings via the Utility menu displayed on the screen. Your images are saved directly to the unit's internal memory or to a flash memory card,

Slide Conversions: A Comparison

We tried three different slide-copying techniques: shooting an actual projection, using a flatbed scanner equipped with a film/slide holder attachment, and feeding slides into a freestanding slide copier. For the purposes of this comparison, we purposely did not apply any corrective cleanup measures afterward. Here are the results.

All three techniques generated acceptable results with our 50-year-old sample slide, but shooting the projection (left) was the least effective, resulting in the grainiest image and an overall color cast that would need correcting. The image produced by the freestanding unit (center) and the flatbed scanner (right) both produced solid results, with the copier generating some washed-out colors and the scanner having the edge in terms of sharpness and accurate color rendition.

Computers & Electronics

which you can then insert into your computer's memory card reader.

Cleanup Chores

There's no getting around it: Your slides are full of flaws, especially after sitting around in a shoebox for a few decades. By now, the images have faded and gotten scratched, dusty, and spotty. When we reproduce and enlarge those images, we're also reproducing and enlarging all of those imperfections.

But in this digital age, you're in luck. Products such as Picasa, Photoshop, and Paint Shop Pro offer automated red-eye correction, dust removal, and even focus enhancement;

The Vupoint standalone slide copier is fast and easy to use, and it produces very good results.
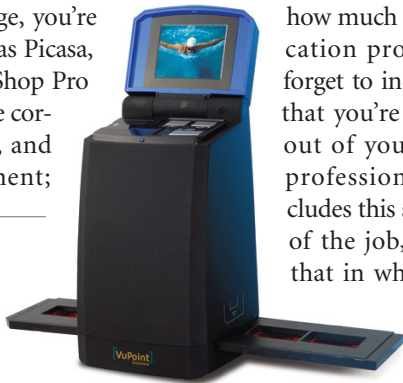
many have "one-touch" correction functions that will automatically make several types of corrections.

Many scanners—including the Epson V600 that we tested—incorporate Digital ICE: Digital Image Correction and Enhancement, a technology pioneered by Kodak but now used by many vendors of digital photography products. With some films, ICE is used during the scan to automatically remove blemishes such as dust and scratches.

When you're thinking about how much time your slide-duplication project will take, don't forget to include cleanup time so that you're sure to get the most out of your copying efforts. A professional service often includes this sort of cleanup as part of the job, so be sure to factor that in when deciding whether to use a pro or do it yourself.

What's In A Name?

Kodachrome, Ektachrome, Fujichrome, Agfachrome. . . . These used to be readily available at your local drugstore or photo outlet, but now they're just words that recall what is beginning to feel like ancient history. Photographers loved them, though: Kodachrome's fine grain and warm colors, Ektachrome's cool blue cast, Fuji's slightly greenish-yellow one. For almost 75 years, the best photographers in the world used slide films to document our world. Now, even though the digital camera is king and we no longer use Kodachrome and its ilk—even if they actually *did* "take my Kodachrome away"—at least we can convert our slides to digital formats and preserve those memories for a few decades more. ▮▮

BY Rod Scherk

Let The Pros Do It

As you may have discovered when "fixing" things around the house, sometimes it's best just to admit defeat, pick up the phone, and call someone who actually knows what he's doing. If the methods described here seem like more trouble than they're worth, consider letting a pro do the job. They're fast and experienced, and most of them guarantee their work.

"By the time you purchase a scanner, and especially if you consider the value of your time, it's actually cheaper to have someone scan your slides for you," says Scott Carroll of Argo Multimedia (www.argomultimedia.com). "A professional is likely to have better

equipment, and will produce a better image unless you are willing to make a fairly large investment, which in many cases is more than the cost of letting a pro do the job."

You could be saving yourself some frustration, Carroll says. "A pro can make the whole ordeal of turning your precious slides into digital images easy, and there is value in my book to convenience."

Scott Crossen, of dig mypix.com (www.digmypix.com), echoes those thoughts: "There certainly are times when scanning your own photos makes sense, especially if it's just a few, and if you enjoy working with digital photos. But slides and negatives usually

contain small scratches and pieces of dust that are invisible to the naked eye but which become apparent when scanned. The specialty film scanners that we use are especially adept at erasing many of those blemishes. The alternative is using a tool like Photoshop to painstakingly retouch the photos. I like to use a haircut analogy: Just about anyone can cut his own hair, but individual results will vary. I prefer to let someone who knows what they're doing cut my hair."

What will a pro cost you? Well, prices vary, of course, and in many cases you have to factor in shipping. All told, you can figure on spending somewhere

between 30 cents and 50 cents per slide. Considering that it can take you several hours to scan (and then correct) a batch of slides, you may decide that's a reasonable investment.

If you're not sure that you can (or have the time to) do a good job with the methods described here, don't forget that there are experienced pros out there who can help. Like the plumber you finally called after days of struggle, these folks can sometimes do a job in an afternoon that would take you several frustrating weeks, and at a cost that's reasonable, given the value of your time and peace of mind. ▮

Readers' Tips

Short & Simple Tips To Make Things Easier

Speed Up Your PC

My computer seemed to run slow, and I found that adjusting the visual effects of Windows was one way to get things moving faster. In Windows Vista and Windows 7, click the Start button, right-click Computer, select Properties, and choose Advanced System Settings. Click the Settings button under Performance and choose the Adjust For Best Performance radio button. If you prefer to have some of the Aero effects, you can opt to enable them one by one and see if any slow down the performance of your computer.

Jeremiah W., Tullahoma, Tenn.

Solve Printer Ink Clogging

My printer regularly sits for a week or more between uses, and sometimes, I have problems with the ink clogging. The printer's ink monitor will also sometimes tell me that the cartridge is empty. To resolve the problem, I remove the ink cartridge and clean the print head using a Q-tip dabbed in isopropyl alcohol. I allow the print head time to dry and reinstall the ink cartridge into the machine. The printer goes through its cartridge-checking process, and when it's done, the printer works like new.

Brooks H., Hilliard, Fla.

Continual Slideshow

For my sales office, I was asked to make a DVD slideshow that would run continually on a TV monitor. I found that the easiest way to use Nero's DVD burning software is to create a DVD without a menu, which allows the video to restart as soon as it ends.

Joel S., Holland, Mich.

A Disk Defragmenter You Can See

Although Windows Vista and Windows 7 feature a Disk Defragmenter utility, it doesn't show you how fragmented the hard drive is, such as the Disk Defragmenter in Windows XP does. I've found that Auslogic's Disk Defrag (free; www.auslogics.com) is a utility that does a good job, and it displays the various fragmented and nonfragmented areas of the hard drive.

Jonathan L., Bronx, N.Y.

Big Screen TV Buying Tip

When I decided to upgrade from an old 31-inch TV to an LCD widescreen TV, I had to figure out what was the best viewing size for my living room. I was choosing between 46-inch and 50-inch models, so I cut out a template from two cardboard boxes to duplicate the 50-inch screen. I stood the template in front of my old TV to give a perspective of what the screen size would look like. Then, I cut off the edges to consider the 46-inch size. I discovered that a 46-inch was a more suitable fit for the room.

Edward K., Parma, Ohio

Turn Off Touch Pad

Recently, a friend asked me if I know how to turn off the touchpad on his notebook PC. I was surprised at how easy it was to turn off the touchpad. In Windows XP, click Start, open Control Panel, and double-click Mouse. Click the Device Settings tab (*NOTE: The tab title may differ based on touchpad hardware.*), select Touch Pad, and click Disable. In Vista/Win7, click Start, select Control Panel, choose Hardware And Sound, and click Mouse. Click Device Settings and choose the checkbox that turns off the touchpad when the mouse is plugged in. Some notebooks also feature a function key that can toggle the touchpad on or off.

Carol D., Bradenton, Fla.

Time To Take Security Seriously

by Seth Colaner

A while back, I wrote a column about Mac security, promising to revisit the topic when there was more to discuss. Well, that time is now.

Here are a couple of important tidbits you need to know: First, with the release of Windows 7, it's time to stop making fun of Windows for having swiss cheese for security. Microsoft made security a major focus for this operating system, and it did a solid job of plugging the old leaks that plagued Windows users for years.

Second, Macs are apparently not much more or less secure than Windows machines. That's right, all that "Macs can't get viruses" and "OS X is such a secure operating system" bravado? Misplaced.

The Market Share Argument

Most security experts agree that although Windows computers are *more likely* to experience an attack than Macs, they aren't *less secure*.

This is essentially a market share issue. It makes economic sense for cybercriminals to use a piece of malware to attack the greatest number of machines possible; if you're an entrepreneur (honest or criminal), you want to get the most bang for your buck. Attacking Windows machines is more lucrative because there are so many more of them. (Granted, older and unpatched Windows machines are easy targets regardless of market share, but that's beside the point.)

In other words, the reason your Mac has never been infected with anything has less to do with your operating system and much, much more to do with the fact that most criminals simply haven't bothered to create very many malware attacks for Macs yet.

How To Stay Safe

Today, the argument about which OS (operating system) is better is more or less moot. This is because although viruses and other "classic" types of malware still exist and are threats, you're more likely to be hit with a social engineering scheme. This is both good and bad, because social engineering attacks such as phishing depend on tricking users into giving up personal information, visiting a poisonous Web site, or clicking a bad link. If you don't fall for the traps, you'll significantly reduce your chances of a malicious attack. Additionally, many attacks come through vulnerabilities in Web browsers and software, which has nothing significant to do with which operating system they're running on.

To protect our computers from threats, we have to be wise about the places we visit, how we act there, and where things come from. Be aware of clicking suspicious links or downloading suspect software. Always keep your applications and operating system patched and up-to-date.

Time For Security Software?

There doesn't yet appear to be a general consensus on which security application you should use to keep your Mac safe (if any). Mac OS X has some security measures built in, such as a firewall and timely security updates, but those are minimal measures at best. There are several third-party options available, including products from Intego (www.intego.com), ClamXav (www.clamxav.com), and old standbys such as McAfee (www.mcafee.com).

No matter what security measures you take, the best ones will always include you being smart about your computing habits. In computing as in the real world, using common sense and good judgment is the best way to stay safe. ▐▌
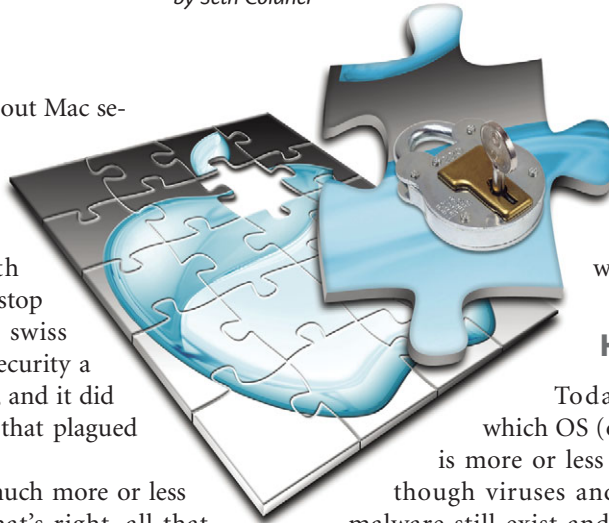
Network Troubleshooting

Trace(route) Your Way To A Working Network
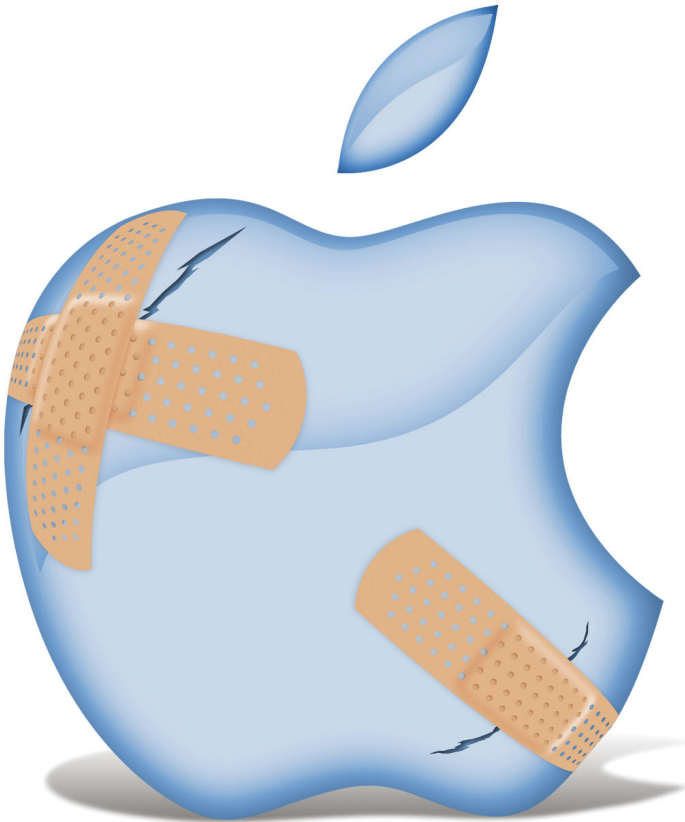
The network has become more important than ever for any computer user. From the need to share a file across your network to plumbing the vast reaches of the Internet, a networked computer is a necessity. So what do you do when the network goes wrong? Read on to learn how to get—and stay—well-connected with your Mac.

Performance & Connectivity

Let's face it: The Internet is still the Wild West when it comes to reliability. Matters have improved considerably in the broadband era, but connectivity gremlins continue to rear their heads. Let's look at some common issues and examine the tools we can use to fix them.

Network issues come from three different sources: the server you're trying to reach, your connection to your ISP (Internet service provider), and the local conditions on your home network. The most important step in fixing network-related issues is understanding where the problem is occurring.

No matter what your network issue, the initial symptom will always be the same: You're trying to reach a Web site or check your email, and nothing happens. You may receive an error message indicating that the server could not be reached. However, a break at any stage of the chain (your network, the ISP, or the Web site) results in the same error. How do you figure out where the problem is?

Begin from the outside and work your way in. If you are unable to reach a Web site, try another one—Google.com is a great choice because of its legendary uptime. Assuming that other sites are working, you've successfully localized the problem to that particular site. You can either wait or inform the site owners of the outage.

However, if Google (or any site you try) is unreachable, it's time to move your investigation closer into your network. The trick now is to distinguish between a problem happening with your ISP and one happening with your own network.

Mac users are blessed with a built-in suite of tools for monitoring the network. In the Utilities folder (click Go and Applications to find it), you'll find an application called Network Utility. This tool contains a number of different tabs that tap into the Unix command-line tools that come with every Mac, allowing you to test and gain intelligence about your network status.

Get Familiar With Traceroute

When you open Network Utility, you'll find a tab called Traceroute. It allows you to enter a domain name (such as Apple.com) and then shows you every "hop" on the network between your computer and the destination. To get a feel for how it works, use Apple.com as your domain and click Trace to begin the process.

The trace occurs in real time in the results window. (See the "Making A Trace" graphic for an example.) You'll note that each hop on the path from your computer to the destination has a number. Hop No. 1 is to the router (cerberus in our example),

Mac Corner

Making A Trace
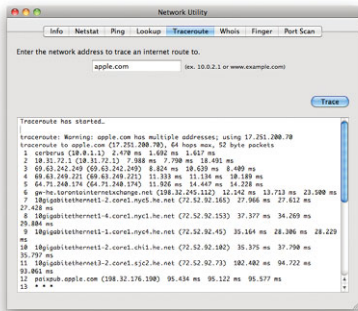
The Traceroute tool shows you every hop between your computer and the destination server.

with the IP (Internet Protocol) address of 10.0.1.1. The next hop after that will be to your ISP's local switch for your network. In most cases, your request will bounce around on the ISP's network for a few hops and then wend its way out to the backbone of the Internet. This starts happening by the sixth hop in the example. Take note of the domain names that start appearing. They include city abbreviations showing travel from Toronto, to New York City, to Chicago, to San Jose, before ending up on an Apple server. Once there, asterisks appear, indicating servers that don't respond. But given that the trace found Apple, we can be confident that everything is working and that Apple's internal servers are simply ignoring trace requests.

Any breaks (indicated by asterisks) that appear before reaching your destination will often indicate a problem at the point where it occurred. If the trace goes beyond your own network, then you have one piece of evidence that your network isn't the problem.

If the problem is beyond your network, a common problem for ISPs relates to a breakdown of their DNS (Domain Name Servers). These are the servers that translate domain names (such as Apple.com) into their IP addresses (such as 17.251.200.70). Try using an IP address in your Web browser instead of the domain name

and see if it works. If so, then you can call your ISP and ask them to fix their DNS servers. However, if that Traceroute stops before your home router, then you know the problem is local.

Solve Common Problems

The fix for many problems is often a power cycle away. Refer to your router's documentation for the best way to reboot it. Tapping a reset button or pulling the power cable are common methods. If that doesn't solve your problem, check to make sure that your router is getting an IP address from your ISP (again, check your router's documentation to learn how to determine this). If it's not, you may want to call them up and ask them to check the status of your broadband modem.

If you are still having trouble, then you may have a malfunctioning router. But before you go searching for your receipt and warranty papers, there's one more place to check: your Mac.

You can use a Web site's IP address to access any site to help you troubleshoot a DNS problem.
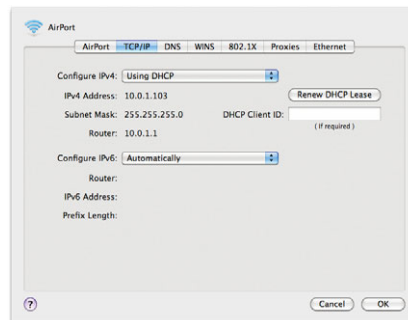
The Mac's TCP/IP settings pane indicates whether you're getting the right information from your router.

Go back to the Network Utility and click the Info tab. Find the drop-down menu at the top, which allows you to select the network interface that you're using; typically it's either Ethernet or AirPort. Look at the IP address; if it begins with either 10.0 or 192.168, then you have confirmed that your router is connected and providing you with a working IP address. If the address begins with 169, then you haven't been assigned an address, which points to a problem, again, with the router. Take another look at your router's documentation to ensure that the DHCP (Dynamic Host Configuration Protocol) server is running (this is the router software that assigns IP addresses to connected computers).

If you have more than one computer on your network, ensure that all of them are having the connection problem. If so, then you know the problem is your router. But what happens when you've narrowed it down to your Mac? Go to System Preferences (under the Apple menu) and choose Network. Click the active interface in the left-hand source pane (again, either AirPort or Ethernet) and confirm the connection: Are you connected to the right wireless network? For an AirPort connection, click the Advanced button and choose the TCP/IP tab. Confirm that you're using DHCP to configure your network settings, that the router IP address is correct, and that clicking Renew DHCP Lease doesn't help.

If possible, try connecting to other networks. If none of them work, then you've likely narrowed the problem down to a fault in your network hardware, and your next step is a visit to your local Apple Store's Genius Bar.

But with perseverance and luck, you'll find the problem long before reaching this point. By taking a methodical approach and learning where the problem lies in the network chain, you'll be well on your way to solving most any networking issue. ▮▮

BY AARON VEGH

Find It Online
Home Improvement On The 'Net

Compiled by Kris Glaser Brambila
Illustrated by Lori Garris

House-Painting-Info.com
www.house-painting-info.com
One of the easiest ways to breathe new life into your home is to give each room a fresh coat of paint. This site offers all the know-how you'll need to add new color to your walls. Karl Crowder, the site's creator, is a professional painter who works in Colorado Springs, Colo., but offers his advice online for do-it-yourselfers all over the world. The site walks you through the process of how to choose the best paint color, techniques for surface preparation, drywall repair, painting methods, and more. Use the links on the left side to navigate topics and learn about which painting tools you should use or how to hang, remove, or paint over wallpaper. You can even share your own painting secrets and tips by clicking the Tips & Articles link at the top of the page.

Garden Guides
www.gardenguides.com
Planting and maintaining a garden, whether it's an assortment of fruits and vegetables or a landscape of various annuals and perennials, can add a colorful finishing touch to your yard. This site has all the information you need to learn how to start a garden and keep it blooming year after year. Use the navigation tabs at the top of the page to discover types of plants, garden spaces inside and out, how to design your garden, keeping pests and plant diseases at bay, organic gardening tips, and more. And as the end of autumn approaches, you can learn how to cut and preserve flowers under the Gardening Phases section.

DoItYourself.com
www.doityourself.com
Whether our home improvement projects are big or small, many of us need a few tips to get started. This site offers how-to information for a variety of projects all around your home, from electrical and lighting to painting and plumbing. Simply click a topic on the left side and browse the results or enter a specific project in the Search field at the top of the page. This site also features how-to videos (click the Videos tab at the top of the main page) that help visual learners accomplish their home improvement goals. You can also click the Forums tab to ask questions if you run into issues along the way or the Shop tab to purchase tools, home décor, and appliances.
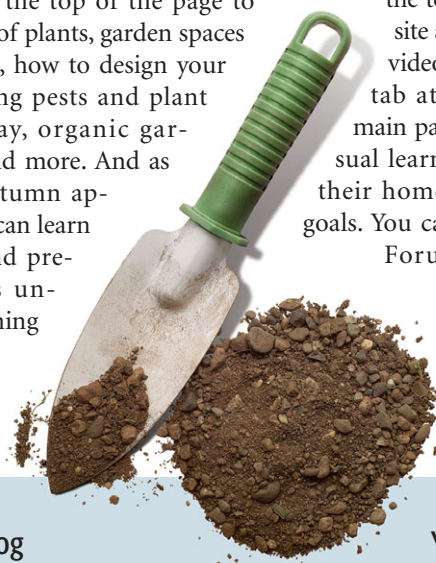
That's NEWS To You

Finding the appropriate online group to match your interests can be a monumental task. So each month, we scour the Internet to bring you the friendliest forums and most interesting bloggers the Web has to offer. This month, we introduce you to bloggers who have plenty of organization and remodeling tips to keep you busy.

Kathy's Remodeling Blog
www.kathysremodelingblog.com
This frequently updated blog features fun and informative posts with tips, ideas, and discussion about home remodeling, and it often touches on articles and advice from various home improvement sources such as magazines, television shows, and contractors. Some past examples include advice for choosing furniture, decorating trends, re-creating the looks found in celebrity homes, and remodeling for individuals with allergies.

Young House Love
www.younghouselove.com
This blog features the adventures of the Petersiks, who bought an old house and decided to remodel every last inch of it. Each post explains their many projects and shows how they achieved their final remodeling goals. Along the way, they even began creating their own line of artwork, which you can browse by clicking the Our Shop tab at the top of the page.
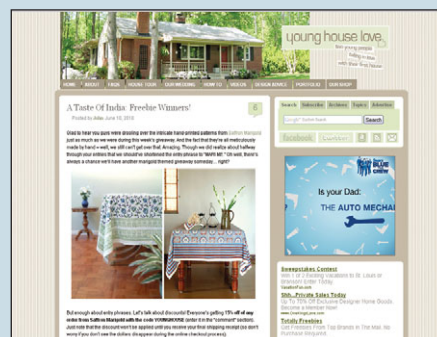
Young House Love explores the journey of one couple working to make over their entire house.

HGTV.com

www.hgtv.com

This site is an extension of the popular Home & Garden Television network. It features countless ideas for remodeling, decorating, landscaping, and organizing your home. Use the tabs at the top of the main page to browse to a topic of interest and discover which shows on the network cover the same projects you're doing at home. Or, type a project name into the Search bar at the top of the page to find stories, tips, and videos about that project. The main page also has several pics of the day, such as Today's Before & After and Daily Designer, to give you additional ideas and inspiration to make over your house.

RoomMates Peel And Stick Décor

www.roommatespeelandstick.com

After you add a new coat of paint to your favorite room, it's time to try some new decorating ideas. This site features hundreds of reusable wall stickers that can be applied to any smooth surface to quickly add a personalized touch. Wall stickers are especially ideal for kids' rooms because they can be removed and replaced as your child's or grandchild's taste changes. Click one of the categories, such as Home Décor, Kids, or Borders, to browse the site's collection. The site offers plenty of information about how wall stickers work, how to apply or remove them, and decorating tips to help you make the most of your stickers.

GarageSaleFinder.com

www.garagesalefinder.com

One of the best ways to furnish a new home or add a fresh touch to an existing home is to check out local garage sales for inexpensive home décor items. This site helps you find garage sales in your area and lets you post and advertise your upcoming garage sale free. On the main page, click List Your Garage Sale or Find Garage Sales. You must be a site member to list your ad but not to search for sales. Enter your ZIP code to explore nearby sales or click the Sale List tab to search sales by day of the week. Each listing offers information about the sale's dates, times, and location, as well as items available and contact information if you have a specific question about an item. ∎
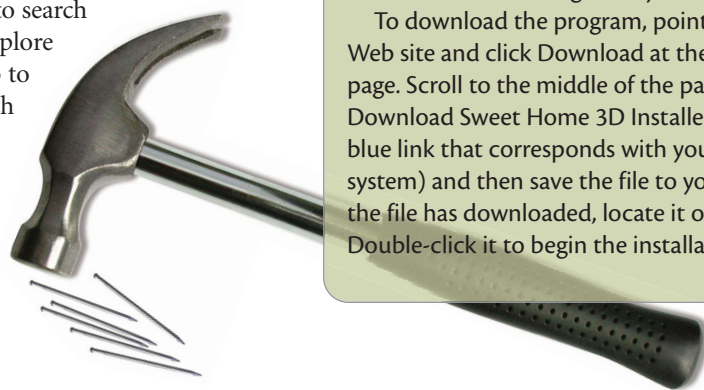
Share The Wares

Some of the best apples in the online orchard are the free (or free to try) programs available for download. Each month, we feature highlights from our pickings. This month, we show you a fun and easy way to plan a whole home remodeling.

Sweet Home 3D

www.sweethome3d.eu

When you're looking at each room in your home with remodeling in mind, visualizing the changes can be tough. You might have a general idea, a color scheme, or a theme that you think might work for your space, but wouldn't it be nice to actually see the changes before you buy gallons of paint or knock down a wall?

Sweet Home 3D is a free, easy-to-use program that lets you create a room or an entire floor plan in just a few clicks. The intuitive interface and simple drag-and-drop design make it ideal for adults and children alike, as a remodeling tool or even as a creation game.

Use the tools at the top of the screen and the grid on the upper right to draw walls and add furniture and then check out the results in 3D on the bottom section of the screen. Your measurements can be as precise or relaxed as
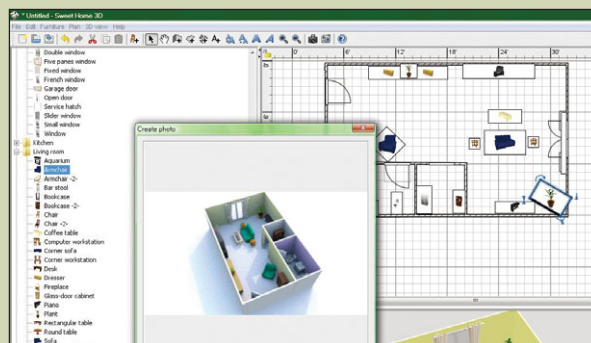
Sweet Home 3D can help you envision your most dramatic remodeling plans.

you want, letting you create any number of architectural designs. You can also change the colors of the walls, floor, and furniture and add accents such as plants or curtains. When you're finished remodeling your dream house, you can click the camera icon on the toolbar to create a polished dimensional image that you can save and share.

To download the program, point your browser to the Web site and click Download at the top of the main page. Scroll to the middle of the page and locate the Download Sweet Home 3D Installer section. Click the blue link that corresponds with your OS (operating system) and then save the file to your hard drive. When the file has downloaded, locate it on your hard drive. Double-click it to begin the installation. ∎

Web Tips
Enhance Your Time Online

Find A Healthy Snack

Problem: I often have trouble finding easy snacks that are actually good for me.

Solution: If you've decided to start eating healthier meals and snacks, Zeer (www.zeer.com) can help you find foods that are not only good for you but also foods that you'll like. Start by searching for a particular snack among 30,000 food products by name, UPC, brand, or category. You can instantly see an item's nutrition facts, ingredients, customer reviews, and gluten-free alternatives. If you set up a free account, you can also share food with friends; add items to your list of favorite groceries; and join communities with specific food concerns, such as allergies or intolerance.

Try Before You Buy

Problem: I want a new cell phone, but I'm not sure I'll like all the new features available on certain phones.

Solution: If your current cell phone contract is expiring soon, it may be time to choose a new phone and possibly a new carrier. For many of us, the carrier we choose depends on which phone models it offers. TryPhone (www.tryphone.com) lets you browse phones from multiple carriers and test drive them using the Web site's
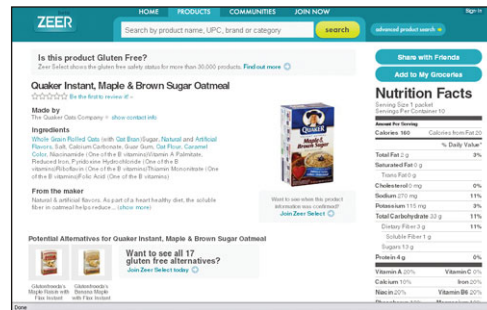
With detailed nutritional facts, Zeer can help you find and choose healthy foods and gluten-free substitutes.

interactive virtual demos. Select a phone and then press its buttons to examine its features. You can also learn about the phone's specifications, watch helpful demos, and read reviews from other customers.

Find The Perfect Read

Problem: I just finished a really good book and need a recommendation for another one.

Solution: Finding a book that's as good as the last one you read can be a challenge, but Bookarmy (www.bookarmy.com) can help you find books and authors that you're sure to enjoy. Start by joining Bookarmy (free) and then entering books you love. Bookarmy will automatically direct you to books, authors, community members, and discussions that match your interests. Create a virtual bookshelf of all your favorites that you can share with friends or browse friends' bookshelves for recommendations. You can also join

author-led Web chats and online reading groups.

Spruce Up Your Desktop

Problem: My Desktop wallpaper has lost its flair, and I want to replace it with something fresh and interesting.

Solution: You can use your favorite search engine to look for new and exciting Desktop wallpapers, but oftentimes, the images you find aren't the right size. InterfaceLIFT (www.interfacelift.com) is a database filled with hundreds of landscape, nature, and astronomy photos that you can search by resolution choices, such as widescreen, fullscreen, HDTV, or multiple screens, so you're sure to find a background that fits your screen. You can also search for wallpapers by various tags, date, artist, or at random by clicking the appropriate button at the top of the main page.

Choose The Right Game

Problem: My kids are asking for video games for their

birthdays, and I want to be sure that I buy them age-appropriate games.

Solution: Sometimes, a video game's intended audience isn't obvious, and it can be tough to know which games are right for your kids or grandkids. What They Play (www.whattheyplay.com) is a family guide to video games where you can learn about the content of the games that your kids want to play. Enter the name of a game in the Search field and then read a synopsis of the game; get an overview of any violence, language, or suggestive themes; and check its ESRB (Entertainment Software Rating Board) rating.

Never Forget Your Passwords

Problem: I have so many online accounts that I can't remember my passwords.

Solution: There are so many online communities to join, it's no wonder we have dozens of passwords that we can't remember. If you are willing to entrust the safety of your passwords to a Web site, Passpack (www.passpack.com) is an online password organizer that can help you keep track of them. All you have to do is navigate to Passpack and log in using your username, password, and a secret Packing Key that you create. Passpack's free version lets you store up to 100 passwords. ▮

BY KRIS GLASER BRAMBILA

Digital Nutrition: Frosted Mini Tips

by Richard Sherman

When I began writing this month's column, I followed the same journalistic ritual I follow each month: I start the day with an introspective soak in my sensory-deprivation tank, followed by a hearty breakfast of organic Frosted Mini-Fluffs. As a writer, I have found no better way to get my creative juices flowing than with an infusion of farm-fresh pyridoxine hydrochloride, butylated hydroxytoluene, and free-range niacinamide.

As the mind-expanding properties of the Mini-Fluff enveloped me, through a whole-grain-induced hallucinogenic haze, I had an epiphany: "True beauty and enlightenment exists in all things miniature." (Yes, you can quote me on that.) It was at that precise moment, while my sugar-fueled creativity was at its peak, that I decided to share with you 10 of my favorite mini tips:

Clear the digital deck of all open windows by minimizing everything to the Taskbar. Simply hold down the Windows logo key and press the *D* key, which presumably stands for "Deck."

If you encounter a Web page that takes an exceptionally long time to slither onto your screen, before resorting to violence, click your browser's Stop button, then click Refresh or Reload. If that doesn't work, give your monitor a swat. It won't resolve the problem, but you'll feel better.

Want fast access to Properties? Who doesn't? Forget right-clicking. That's so 2009. Instead, click to select an item, then press ALT-ENTER. Even faster, hold down the ALT key and double-click a file. Blammo! Instant Properties.

If your mouse pointer darts and dashes around the screen as if possessed, go to your Control Panel, select Mouse (or search for Mouse Settings in the Windows Vista/7 Start Search field), click the Pointer Options tab, and move the slider bar in the Motion section to the left to slow down the action.

Firefox users can free up precious screen real estate by using small icons. To transform your Firefox icons into iconettes, click View, Toolbars, and Customize and select Use Small Icons.

Launching searches can occasionally lead to a page that no longer exists. Bummer. Before immobilizing depression sets in, try viewing an older version of the page. At the bottom of most Google search results, look for a Cached link, which will provide access to a previous incarnation of a given search result.

To highlight text, place your cursor at the start of the text, hold down the SHIFT key, and press the Right arrow key to select one character at a time. Hold down the CTRL and SHIFT keys to select one word at a time.

When you're ready to send email, don't risk a debilitating mouse-related injury by clicking the Send button. Instead, keep your hands safely on the keyboard with one of the following mail-sending keystroke combos: In Eudora, press CTRL-E; in Outlook Express and Outlook, press ALT-S; in Thunderbird, press CTRL-ENTER; and in Windows Live Mail, press ALT-S. (Uniformity is a wonderful thing.)

If you tend to get flummoxed and sputter "Homina-homina" when a tech-support rep asks what version of a program you're using, you can avoid that humiliation by clicking Help and About to display version information for any Windows program.

When using Word or WordPerfect and you get to the end of a line, there may be an occasion when you'll want to keep two words together on the same line. For example, if "New" is at the end of one line and "York" continues onto the next line, you may want to keep "New York" together. If you're using Word, first delete the space between the words, then press CTRL-SHIFT-Spacebar after the first word, and in WordPerfect, press CTRL-Spacebar.

So there you have it, 10 incredible mini tips in one column! (Where are the Guinness people when you need them?) When I'm not soaking in the tank, I'm always on the lookout for little-known tips or known little tips, so if you have favorite goodie, please e-me at MrModem@gmail.com. ▮▮

Mr. Modem (Richard Sherman) *is an author, syndicated columnist, radio host, and publisher. "Mr. Modem's Weekly Newsletter" provides personal responses to subscribers' computer and Internet questions, plus weekly computing tips, Web site recommendations, virus alerts, hoax warnings, and more. For additional information, visit* www.MrModem.com.

Roxio Creator 2010
Create Labels

Digital Media Suite

Beginner

WinXP/Vista/7

Roxio Creator 2010 helps you create professional-looking DVDs, but the fun doesn't stop there. After you've put the finishing touches on your home movies, you can complete the package with custom DVD labels.

Creator 2010 includes two tools for creating labels. The Express Labeler is useful for when you need an introduction to creating labels and want to design something quickly, but it doesn't allow for much customization. The Label Creator offers more flexibility, but it can be difficult to follow because there are no step-by-step wizards as you'll find in Express Labeler. This month, we combine the best of both by walking you through Label Creator.

Step 1: Open Label Creator. Open Roxio Creator and select the Video-Movies category from the Home window. From the project window, click Create Labels-Advanced. This launches Roxio Label Creator.

Step 2: Choose layouts. In this example, we'll create multiple DVD items: a label for the DVD itself, a cover for the DVD case, and a booklet to insert into the case. From the File menu, select New Project. In the Start New Project dialog box, select Video Project from the drop-down menu. (This is important because different content types, such as song lists for audio projects, are automatically created in Creator layout styles.)

Next, consider what case you'll be using for your DVD. A DVD is the same size as a CD, so there's only one option for the DVD label; put a check mark in the Disc box. You have three main choices for the case, however. If you're using a standard, commercial DVD case, select the DVD Case and DVD Booklet boxes. If you're using a "regular" CD case, select the Front, Back, and Booklet boxes. And if you're using a thin CD case, select the Slim Case Insert and Booklet boxes. In our example, we put check

With Roxio Label Creator, you can create a wide range of labels, disc covers, and other items for your DVDs.

marks in the Disc, Front, Booklet, and Back boxes. Click OK.

Step 3: Select a style. In the Edit Layout menu, click Select Style. Choose your desired style, leave all default check marks in place, and click OK. This action applies the same style to all the items, although you can mix and match as much as you'd like.

Step 4: Edit text content. Each style has standard text for items such as Title, Movie Duration, and Chapter List. (The exact objects vary depending upon content type and style.) Let's add a title to our labels. Click the Front icon near the bottom of the window. Double-click the Title text box, and the text editor appears. Enter a name and use the layout tools in the top toolbar to change type, font size, alignment, and more. Then, click anywhere outside the text box to save your new title. You'll soon notice one neat trick: The title appears across all of this project's layouts.

Step 5: Add an image. To add a photo, click the Disc icon. Click Add Image from the Add Object menu. Browse your hard drive for a photo and click Open. The image appears to the right of the workspace. Drag and drop it to the desired location. (*NOTE: Although you can move and resize images in Label Creator, you'll need to crop the image via the PhotoSuite app if you want only a section of a photo. Also, keep in mind that some layouts and styles do not allow you to add images, and that you may need to use only part of a style for the image to show properly.*)

Step 6: Add DVD icon. You can make numerous other customizations, but we'll make one final one in our example. The Back layout of our chosen style includes an icon describing the type of media, in this case DVD+R (DVD-recordable). We're going to change this to DVD+RW (DVD-rewriteable). Click the Back layout icon and double-click the Disc Type icon. In the Disc Type Properties window, select the DVD Video+RW icon and click OK.

Step 7: Save your project. From the File menu, select Save Project. Name it whatever you like, but be sure to keep the default extension, .JWL. This is Roxio's project file format, and keeping this extension will let you reopen this project, edit it, and print it to various media. ▌▌
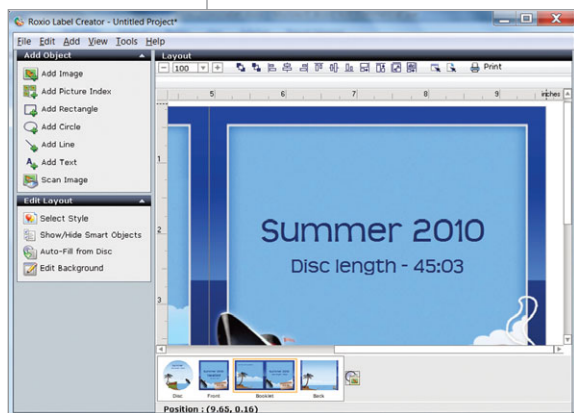
BY **HEIDI V. ANDERSON**

Browsers
Give Kids A Window To The Web

If your kids are getting old enough to use the computer and mouse and actually click what they mean to click, you might start to wonder if there's anything they can do with the Internet on their own.

Of course, every child is different, and each parent's guidelines are different. But if you'd like to allow your youngsters a little computer time while keeping them focused on kid-friendly sites and away from important settings on your machine, there are a few specialized browsers that can help.

Zoodles and KidZui are both fairly polished lightweight browsers designed to access only a limited number of Web sites while blocking access to most of the Internet. As every article such as this one says: There's no substitute for direct parental involvement. But a little freedom—at least in moderation—is not a bad thing, either.

Zoodles

Zoodles (www.zoodles.com) doesn't look much like a standard browser. Instead of typing in Web page addresses or clicking bookmarks in a menu or on the toolbar, kids can click one of nine large icon-like cards to visit different pages. If nothing on the first page looks interesting, a large arrow icon leads to a new page of choices.

It can be hard to figure out exactly where some of the cards lead. Some have Play buttons superimposed on a picture, meaning that they load up videos that the folks at Zoodles found to be acceptable for kids. Many come from PBS Kids or other children's sites. Some of the cards lead to games; others lead to books.

Even for kids, Zoodles is a little unorganized. Each page has a jumble of links with no apparent theme or connection. Kids must click through each nine-card page to find what they'd like to see.

The basic version of the browser is free, but for $7.95 per month or $59.95 per year, you can sign up for the Premium Zoodles service. Premium Zoodles adds timer settings, ad blocking, and parental monitoring, so you can take a look at which Web sites your kids have been visiting. Zoodles offers a free trial period so you can check out the Premium membership before committing.

KidZui

You can find another tot browser at www.kidzui.com. KidZui looks more like a regular browser than Zoodles, with Back and Next buttons, an Address Bar, and bookmarks along the left side of the page. The bookmarks lead to categories of sites, which then appear as icons in the main screen. Kids can choose where they want to go by clicking the different pictures.

As with Zoodles, the KidZui universe is limited to sites that have been selected as age-appropriate by the team behind the site. Every parent is probably going to disagree with some choice or another, but you can count on there being nothing available that strays too far from what most parents would deem acceptable.

Navigating the different categories and sites accessible through the KidZui browser is not quite as intuitive as you might hope for in a program aimed at children, but with a few pointers from a parent, the littlest users in your house will probably get the hang of everything. Kids who are still learning how to read will need to find their ways around using pictures that don't always have much to do with the actual links.

Like Zoodles, KidZui is free for the basic version, and it offers a premium, fee-based version that includes more reports and features for parents and additional activities in the browser for kids. The price is $7.95 per month or $39.95 per year.

Kid Clicks

These are, of course, tools for young children. Any child a little older than a kindergartner can probably defeat just about any filtering software that you care to install. Just as important as keeping kids away from particular sites, however, is creating a manageable Web that points them to particular, somewhat useful (or at least age-appropriate) sites. Both of these browsers attempt to organize the Web for children, and both offer free versions, making them worth a try. ||

by Alan Phelps
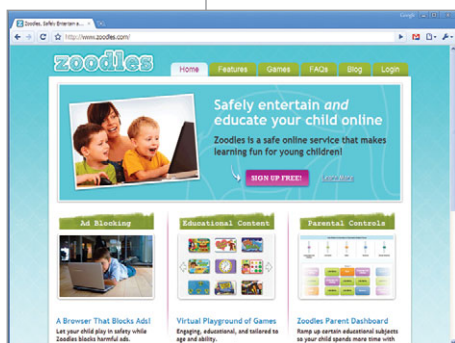
Zoodles limits Web browsing to a prescreened list of sites. With a Premium membership, parents can monitor exactly which sites their kids have been visiting.

Online

Define Your Online Persona With A Customizable Home Page

Flavors.me

Chi.mp

Beginner

If you have pieces of your online persona strewn about various photo and social networking sites, it can be nice to tie everything together in one gateway page. For some people, that means creating a blog. Maybe you just want a basic page to call your own, a place where others can find you, either for professional or social reasons.

A couple of sites make setting up your customized front door on the Web terrifically simple. Aside from making pages that look nice, these sites also automatically include the content you've posted around the Web through services such as Twitter or Facebook. Visitors will find everything at one convenient spot, and all you or anyone else needs to remember is a single URL.

Flavors.me

One of our favorites, Flavors.me (www.flavors .me), provides customizable, simple, and potentially stylish home pages that usually contain a large graphical element with links to your various online outlets. The basic version, which can include links to up to four services, is free. To build in additional services or take advantage of the full layout library, you'll need to pay $20 a year for the premium version.

The Flavors.me community is clearly one that pays attention to design. Many of the site's users have set up bold pages with large pictures or fonts front and center. Links to Facebook, Twitter, Tumblr, and other accounts typically line one side of the page. Click one of these links to another site, and a version of that content appears right on the Flavors.me page.

It's not hard to create a home on Flavors.me—just sign up for a free account to check it out. Once you register, your page address will be flavors.me/<your ID>. For example, if your Flavors.me ID is BobSmith, your page address would be flavors.me/bobsmith. (If you want something a little catchier, upgrade to the premium version and tie your Flavors.me page to a domain name that you already own.)

With Chi.mp, you can pull together your various online personality strands to create one go-to site address to give out to friends and colleagues.

Your page starts out blank. The Design Panel controls the layout, text content, fonts, and other elements. Enter your name and a short bio and then click the Design link. This is where you can customize the look of your page. Finally, click services to set up the different photo and social networking sites, blogs, and other sites you want to link up to your new personal page. If you're stuck for ideas, head back to the main Flavors.me page and look for the link to the Flavors.me directory.

Chi.mp

Flavors.me is definitely about style, but our other favorite, Chi.mp (www.chi.mp), is more about substance. The layouts, while pleasant, aren't quite as flashy as the designs from Flavors.me. The functionality of Chi.mp, however, is more expansive. Basic, free accounts offer users the ability to add more than 20 different services to personal pages, including RSS (Really Simple Syndication) feeds. Viewers can see your activity stream from all of those sites at once or filter by service.

The first step in creating an account is to choose a username that also becomes your domain name. For instance, if your user ID is BobSmith, your page address will be BobSmith.mp.

After you enter a domain name and set up your account, the site takes you through adding different sites and other content. You can also choose a layout, colors, and other settings to make your new .mp home your own. Most pages end up with biographical information in one column, and a second, larger column displays your recent activity around the Web.

After you've set up everything, you can start logging in directly from your personalized page to make changes. Chi.mp says that the domain name is "yours," although to use it outside the Chi.mp framework, you'll need to pay $20 per year to buy the address.

A personalized home page such as those you can build at Flavors.me or Chi.mp isn't something everyone needs, but if you're looking for one place you can send business prospects or new friends, both sites make good first impressions. ▌▌

<div align="right">BY ALAN PHELPS</div>

Microsoft Word 2007

Use Hyphens For Appealing Layouts

Most of us take hyphenation for granted when composing casual documents where layout isn't important. There are times, however, when it's worthwhile to pay attention to where hyphens fall in a document. For instance, paying attention to hyphenation is important in formal documents such as business brochures, job résumés, or letters to clients. You want these pieces to be as attractive and easy to read as possible.

Too many consecutive lines that end in hyphens can be hard on the eyes.

Hyphenation Basics

Hyphenation options are available in the Page Setup group of the Page Layout tab. Click the Hyphenation button to open a drop-down list that shows the choices None, Automatic, Manual, and Hyphenation Options. In most cases, the Automatic setting works fine, and Manual lets you approve each possible hyphenation.

Advanced Options

Narrow columns of text without hyphenation, especially when text is justified, creates an unpleasant look.

Additional options are available when you click the Hyphenation button and choose Hyphenation Options. Two functions in the Hyphenation dialog box overlap what is available in the drop-down list. Checkmarking the Automatically Hyphenate Document box and then clicking the OK button is the same as clicking Automatic in the drop-down box. Likewise, clicking the Manual button brings up the same dialog box as when you click Manual in the drop-down list.

The three functions that are unique to the Hyphenation dialog box are Hyphenate Words In Caps, Hyphenation Zone, and Limit Consecutive Hyphens To. Words in all capital letters are often acronyms (such as NATO). Acronyms are easier to understand when they are not hyphenated, so if your document contains many acronyms or other words in all caps, you might want to uncheck this selection.

The second function sets the hyphenation zone, which controls when a word is subject to hyphenation depending upon how close it is to the right margin. If a word at the end of a line enters the zone, it is hyphenated, if possible. (If the word can't be hyphenated, it "wraps" to the next line.) If the word doesn't enter the zone, it's not hyphenated. This setting influences layout quite a bit. You can reduce the number of hyphens in a document by making the zone larger; conversely, you can reduce the ragged appearance of the text on the right by making the hyphenation zone smaller.

The third function limits the number of consecutive lines that end in a hyphen. This is useful when you have selected Automatic hyphenation. You may notice that many consecutive lines end in hyphens, which can simply look bad. A good rule of thumb is not to allow more than two lines in a row to end in a hyphen. However, forcing Word to forego a hyphen can result in a very short line if the word to be hyphenated is long. So you need to weigh the pros and cons of each.

Hyphenation, Alignment & Columns

Hyphenation, text alignment, and column size are all closely linked when considering layout. Automatic or manual hyphenation should be used in the majority of cases when the text is justified—that is, the left and right sides are perfectly lined up against the margins instead of "ragged." This is especially true if the text lines are relatively short. Without hyphenation, a long word that doesn't quite fit at the end of a line wraps to the next one, leaving too much space between the words. When this occurs too often in a column of text, it can result in an unpleasant "river" of vertical white space through the text.

Likewise, hyphenation should be used with especially narrow text columns that are aligned along the left side of the column. In this case, there is no river of white space, but rather the possibility of some very short lines of text and a very ragged right side.

Word processors have taken on hyphenation duties for us, and in most cases that's a good thing. But taking control of the process at times can make your document look more professional and attractive. ▮

BY TOM HANCOCK

Adobe Photoshop Elements 8

Smart Tags & Auto-Analyzer

Photoshop Elements 8 delivered few updates to the functionality of the previous version, but one that Adobe touted was the new Auto-Analyzer. It can make speedy work of sorting through large image batches, but it's had some mixed reviews due to reported sluggish side effects.

Prescription

The Auto-Analyzer is designed to evaluate photos automatically and then tag them based on some fundamental filters. When you let Auto-Analyzer loose on the photos in the Organizer, it checks out each image and then assigns the corresponding Smart Tags.

Smart Tags is another new feature in Elements 8. Smart Tags get their own section in the Organizer bin, found on the right side of the window, under the Keyword Tags section. They're smart because Auto-Analyzer uses them to identify elements that indicate better-quality photos—labeling them according to High, Low, or Medium Quality as well as on lighting, among other things. The complete list is visible in the Smart Tags section of the Organizer bin. If you have sturdy self-esteem, you probably won't be bothered by Elements tagging some of your photos with Low Quality, Too Dark, or Too Bright. If you don't, you might find yourself taking a photography course.
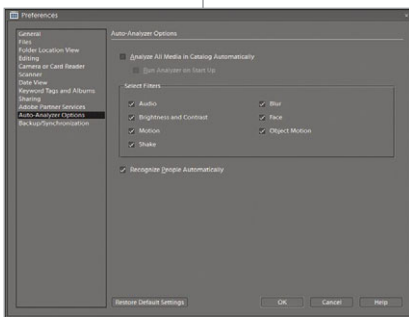
Set the Smart Tag filters you want Auto-Analyze to use.

Directions

To get tagging, open the Organizer and go to Edit, Preferences, and Auto-Analyzer Options. The Auto-Analyzer Options box appears. In the Select Filters section, tell the tool what criteria to identify (Brightness And Contrast, Blur, etc.)—just checkmark the box next to the filters you want to apply.

If you want to enable Auto-Analyzer to run automatically, check Analyze All Media In Catalog Automatically. Then click OK, and Elements will apply Smart Tags to images in the catalog.

Right-click Smart Tags to limit searches to those filters.

If you prefer to do it manually, finish choosing your filters and leave Analyze All Media In Catalog Automatically unchecked. We'll talk more about the Run Analyzer On Startup checkbox in the next section; leave it unchecked. Click OK to return to the Catalog. To run Auto-Analyzer manually, right-click any photo and choose Run Auto-Analyzer. Elements will run the feature on the selected photo.

You'll notice purple tags to the bottom right of each photo. If necessary, hover the pointer over a tag to reveal which Smart Tags Auto-Analyzer attached. Right-click to remove any of the tags.

Once Elements has tagged the photos, you can search for photos based on those tags. For example, you can search for High Quality photos in a folder or search for a different tag while excluding Blurred images. To search based on these filters, turn your attention back to the Organizer bin on the right. Click the triangle next to Smart Tags to reveal all the tags. Right-click a Smart Tag to choose a new search using that filter, to add media with that filter to the search results, or to exclude media with that filter from the results. When you choose, the filtered photos appear in the main window.

Side Effects

Let's return to that other checkbox in the Auto-Analyzer Options box, Run Analyzer On Start Up. Go back to the Edit menu, Preferences, and Auto-Analyzer Options. Under the Analyze All Media In Catalog Automatically box is a subcheckbox to run the tool at startup. This little box caused much consternation for many Elements users. Running automatically at startup can cause a slowdown in productivity, particularly if you haven't changed the default Select Filters settings, which means it's checking all types of media with every filter. We can't think of a reason to enable this, particularly with the power suction. Keep it unchecked.

If you're sorting through a large volume of images from a single trip or shoot, the Auto-Analyze feature may make sense—it can sometimes help separate the quality photos from the not-so-great shots pretty quickly. This is a good starting point to whittle the numbers down, though no computer program can really identify the artistic quality of an individual photograph. At least, not yet. ▐▐

BY ANNE STEYER PHELPS

Microsoft PowerPoint 2007
Comment On Presentations

Slideshows have a few things in common with children, because (if you subscribe to Hillary Clinton's famous theory) it can take a village to raise both. Most of us have other folks weighing in on every list and photo in our PowerPoint presentations. Because you probably don't sit together at the computer creating the slides, you need an effective way to pass presentations around. PowerPoint's built-in commenting tools help you accomplish that by inserting comment boxes right into the slides. Think of it as the electronic equivalent of writing your feedback on printouts of each slide.

One introductory note is in order for users who have been in the presentation commentary game for a while. You may have used the Send For Review feature in previous PowerPoint versions, but don't go looking for it in PowerPoint 2007. Microsoft removed this traditional comment-and-merge feature and went with a simpler setup: sending presentations as email attachments that people can comment on and send back to you.

Add Comments

Adding your thoughts to a slide is simple. Click Review on the Ribbon and click New Comment. When you click New Comment, a text box appears, and you can start typing. When you're done, click outside the text box.

You can place the comment wherever you'd like to ensure the reader knows what you're referring to with your remark. If you don't click any specific object on the slide, the comment box appears in the slide's upper-left corner. If you make multiple comments this way, they'll stack up. You can leave your comment closer to the item it involves by clicking a graphic, a text box, or even a specific word of text before clicking New Comment. PowerPoint will drop the comment on top of or right beside the selected item. You can rearrange the comments by clicking them and dragging them to new positions on the slide. After you make a comment, you'll notice it shrinks to a thumbnail labeled with your initials and a number assigned to the comment.
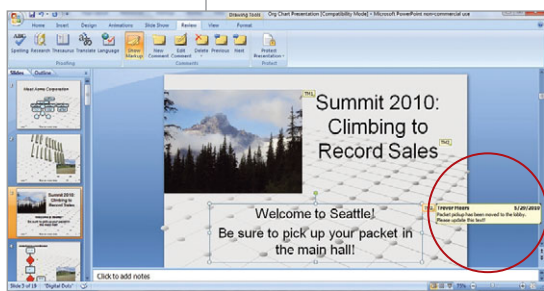
When several people are collaborating on a presentation, use comments to share feedback on specific parts of each slide.

Navigate Comments

The Review tab's other tools come into play when you receive a document in which others have left comments. For instance, you may be the presentation's final owner, meaning you're reading all the comments and deciding which suggestions to follow. Or you could be one person in a series of reviewers commenting on a file and passing it along. In that case, you could be both adding your own new comments and adding your thoughts to a comment already left by another user.

If you open a presentation that you think contains comments, but you don't see any thumbnails, click Show Markup on the Review tab to reveal the comment icons. Place your cursor over the comment boxes for a pop-up of the info inside. If you're handling the document as one in a series of commenters, you may want to add your thoughts to what someone already said. In that case, click inside the comment, click Edit Comment, and start typing. When you're done, PowerPoint changes the thumbnail's label to show your initials, because you're the most recent reviewer.

If you'd like to move through the comments methodically, use the Previous and Next buttons on the Review tab. After you click a thumbnail, these buttons will open the comments one by one without you clicking on anything else.

Other Review Tab Tools

You'll probably notice that the Review tab includes a few other functions that aren't really related to commenting on presentations. The left side features several buttons for basic text review tools including a spell checker, thesaurus, and rudimentary translation tool. Many users don't even know PowerPoint offers the last two options. To use the thesaurus or translation tools, click a word on your slide and click either of the buttons. This opens the Research pane on the screen's right side. The pane displays results appropriate to the button you clicked. If you want to apply a different tool to the selected word, use the drop-down box at the top of the pane to switch between the thesaurus and translation. To change the translation languages, use the drop-down boxes lower in the pane. ▐▌

BY TREVOR MEERS

Spreadsheet

Advanced

WinXP/Vista/7

Microsoft Excel 2007
Two Tricks For Cleaning Up Data Lists

It's always worth reminding ourselves: Excel really isn't a database, though many of us use it as one. And with so many data lists living in Excel documents, it makes sense to manage the information wisely. This month, we look at a couple of little-known Excel features that help with that job. One makes things such as sorting easier by instantly splitting multipart information (such as first and last names) into separate cells. The other feature helps you track down repetitive information in big lists and decide what to do with it.

Text To Columns

This tool handles one of those jobs no one should be doing manually. Let's say you have a whole column filled with employee names such as "John Doe." You realize it would be more useful to have separate entries for each person's first and last name. Before you start cutting and pasting all the first names into separate cells, check out the Text To Columns feature, which does it for you.

First highlight the data you want to convert. Then click Text To Columns on the Ribbon's Data tab to launch a wizard. In our name example, the wizard notices a space separating each first and last name and labels this "delimited" data. (A delimiter is a character that separates items; commas are another common delimiter.) Click Next to see a screen where you tell Excel what kind of delimiter is in use. For our example, click Space and clear the other boxes. The Data Preview box at the bottom of the dialog box inserts a vertical line to show you how Excel plans to split up your information.

Click Next to reach the third screen, where you'll set the data format for each of your new columns. The default General format works for our name example, but to try the settings out, click one of the columns in the preview box and choose Text. This box is also the place to indicate where you want your newly split data to live. By default, Excel uses the data's existing column as the first column

Don't waste time cutting and pasting. With the Text To Columns feature, the list on the left instantly becomes the two lists shown on the right.

in the new display, but you can use the Destination box to choose another spot in the worksheet. If you use the default destination, the existing data is overwritten. If you choose a new destination, the original data remains as it was.

Text To Columns can handle other data-separation jobs, too. For example, you could use the feature to break up three-part product numbers (such as "01 45 98") into three entries in three different columns.

Find Duplicate Values

In some lists, certain data should appear only once. Maybe you're cleaning up a list assembled from multiple sources, and you're sure there's repetitive information in there. You can take several approaches to finding the clones. You could simply press CTRL-F and do a search for the data in question. If Excel finds more than one occurrence, you can clean it up. But with large ranges of data, that approach would require you to manually search for everything in the list to ensure it doesn't appear twice. That makes Excel's Duplicate Value tools a better choice.

You can go a couple of ways here: have Excel instantly eliminate duplicate values or simply highlight them so you can make a manual decision about next steps.

Eliminating duplicates is simple. Highlight a range of data and click Remove Duplicates on the Data tab. Excel lets you confirm your selected range and then removes the repeats, giving you a summary of how many duplicates it deleted and how many unique values remain. If you change your mind, you can press CTRL-Z to undo the changes.

If you want more approval power over what's deleted, ask Excel to use Conditional Formatting to flag the duplicate data rather than automatically deleting it. Highlight the range of cells and then click Conditional Formatting in the Home tab's Styles section. Click Highlight Cells Rules, then Duplicate Values. A dialog box appears and lets you choose what highlighting will be applied to the targeted cells. Click OK to launch the search and then look through your data for highlighted cells and decide what you want to do with them. ▮
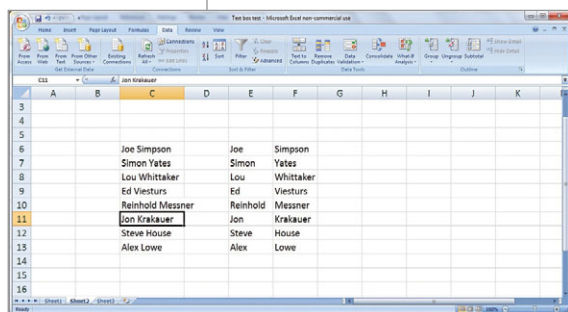
BY TREVOR MEERS

Quick Tips

Secrets For Succeeding In Common Tasks

BY STEPHEN J. BIGELOW

Internet

Question: I just upgraded my high-speed Internet service from my cable provider. Is it necessary for me to replace my cable modem to see the full benefit of the additional download speed?

Answer: Moving up to a higher Internet cable service speed doesn't necessarily require a new cable modem. It's really a matter of how the ISP (Internet service provider) chooses to upgrade its network and services. For example, an ISP may update its network to support newer standards in order to provide higher service speeds, and a new modem may be necessary to realize the full speed benefits. However, your older cable modem will probably continue to function normally, even at less-than-optimal speeds. Chances are that your ISP will notify you when a cable modem upgrade is available and appropriate for your service. Check with your provider to verify the status of your hardware.

Recycle Bin

Question: How much hard drive space does my Recycle Bin take? Is it worth managing the Recycle Bin size?

Answer: Windows sets aside a small portion of your available hard drive space for the Recycle Bin. Most PC users do just fine with default settings and get very little direct benefit from altering them. However, you can save some hard drive space by tightening up the space allocation or disabling the Recycle Bin entirely.

If you rarely recover files that you delete to the Recycle Bin, why tie up excessive drive space unnecessarily? In Windows Vista and Windows 7, right-click the Recycle Bin icon, select Properties from the drop-down menu, highlight the drive where the Recycle Bin is stored, select the Custom Size radio button, enter a new size (in megabytes), and click Apply and OK. For example, if the current Recycle Bin size is set to 1,600MB (1.6GB), setting the new size to 800MB will free 800MB of hard drive space.

If you never access the Recycle Bin or find yourself moving files to the Recycle Bin while holding the SHIFT key (to delete the file and bypass the Recycle Bin), it might be easier to just turn off the Recycle Bin. In the Recycle Bin Properties dialog box, click the Do Not Move Files To The Recycle Bin radio button and click Apply and OK. Now, deleted files are not saved to the Recycle Bin at all, and all of that hard drive space is free to use elsewhere.
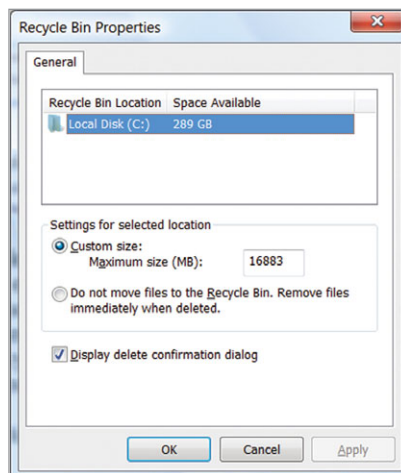
Reduce the size of the Recycle Bin or turn it off completely to save a bit of hard drive space.

Laptops

Question: My laptop attracts pet hair and seemingly every crumb in the house. What is the best approach for cleaning the keyboard?

Answer: Purchase a can of compressed air from your local electronics store and be sure that it includes the long thin extension tube. Attach the tube to the can, hold the can upright, and use short blasts of air to blow any debris out from between the keys. Hold the tube no closer than an inch away, or else you may risk causing condensation inside the keyboard. Also, remember to do this outside. Otherwise, you're just going to unleash a cloud of debris in your home. Don't bother trying to vacuum the keyboard—you generally won't get the hose close enough to do any good, and the static charges that household vacuums develop can do more harm than good to your laptop.

Quick Tips

Question: I edit a lot of email. How can I set up Microsoft Outlook 2007 to automatically insert my name with each text edit?

Answer: Launch Outlook 2007, click Tools, click Options, select the Preferences tab, and click the E-mail Options button. Select the Mark My Comments With: box and then enter your name. Click OK
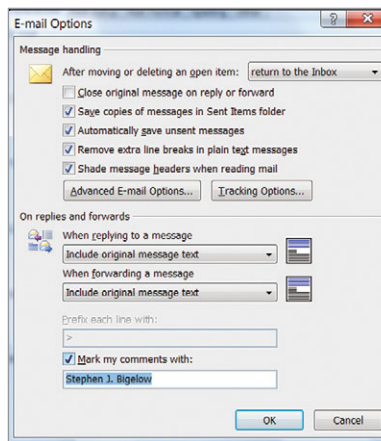
to save your changes. This feature is even more interesting when it's used with a collaborative group of users. And, you don't have to stick with your name; you can use a department, title, or any other meaningful designation to keep track of each contributor's input to the email.

Add a unique tag to your email replies and comments so that other users can easily see who is contributing ideas.

Question: Is there any real benefit in selecting a higher number of overwrites with a file shredding program? It seems that 35 passes is such overkill, isn't it?

Answer: This is where computer logic and real-life physics meet. You can't actually delete data from a hard drive; you can only overwrite it. So when you "delete" a file, you're only allowing the computer to reuse that space. The actual data remains on the drive until that space is used by another file or program. This is why undelete and data recovery tools work to recover "deleted" files.

It may seem like only one overwriting pass should do the job. However, some powerful forensic data recovery processes can read residual magnetic traces of the overwritten data and recover some original data even after it has been overwritten. The best way to prevent that kind of examination is to overwrite the deleted data multiple times. This is why tools such as File Shredder (free; www.fileshredder.org) allow you to select from a

variety of passes and algorithms. The goal is to scramble the residual magnetic traces on the hard drive platters so severely that no forensic technology can recover your deleted data.
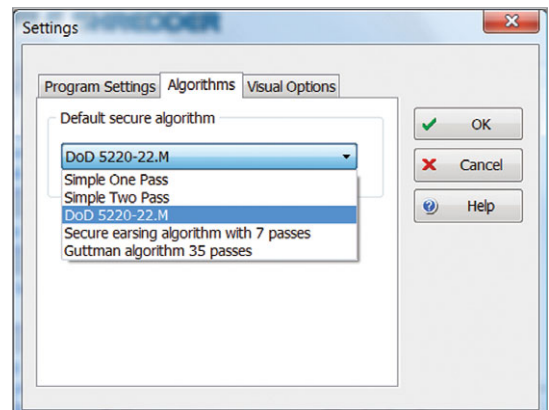
When using a file shredding program, one or two passes should be adequate for everyday PC users, but government and business users may want far more passes to secure sensitive data.

Question: Do I really need to use the Safely Remove Hardware feature before unplugging my USB drive?

Answer: The problem is with the way that Windows opens and closes files. It's important for Windows to close a file completely and empty any cached data from memory to the storage device before it is removed—if this doesn't happen, the

file on the thumb drive may be corrupted and even wind up inaccessible. However, if you deliberately save a file (such as a Word document or spreadsheet) and close its instance on your desktop first, chances are that the file will be intact when you remove the thumb drive. Still, it's a good idea to use the Safely Remove Hardware feature and ensure that all open files are closed properly before removing the external device.

ACTION EDITOR

Digital River's Refund & Gateway's Recovered Programs

On May 27, subscriber Jean-Marie Guenette of Montreal forwarded us an email he sent to Windsty (www.windsty.com), a New York-based developer of the program Windows 7 TuneUp 4.7. Jean-Marie purchased it for $44.61 March 24 via Share It (www.shareit.com), a division of Digital River (www.digitalriver.com), the listed seller and contractual partner for the software. After the registration key Jean-Marie was supplied for the program failed to work numerous times, he reported the problem to Share It and received a new key. That key, however, was for version 4.6 of Windows 7 TuneUp and not 4.7. Additionally, Jean-Marie was informed by Share It that a $19.95 update to version 4.7 was required, despite his having already purchased that version previously. Jean-Marie's further attempts to reach Share It and Windsty to resolve the problem went unanswered.

After receiving Jean-Marie's email, we attempted to contact Share It and Windsty via email, online forms, and telephone without luck. We then contacted Digital River via its public relations department and described Jean-Marie's experience, including that he had purchased the software via Share It. Four days later, we received a response from Digital River that it had researched Jean-Marie's order, provided him a refund, and sent a notification email. Jean-Marie confirmed as much the same day.

I bought a Gateway NV52 last year (September 2009) that came with a coupon to upgrade to Windows 7 when it was released. I waited a few months to hear what others had to say about Win7 before upgrading. When I did, I lost all the software the system came preloaded with. I asked Gateway if there was a way to retrieve the software, but it replied no.

Gateway also said there wasn't a way to purchase the software. I really liked some of the programs and didn't know I would lose the software when I upgraded. I'd like the software back. Is there any way to do this? I can see the programs in the Windows.old folder, but they won't launch. Instead, a message says I have to reinstall the software, which I don't have.

Jeff Ramos
Vail, Ariz.

Upon contacting Jeff, we learned he had upgraded his system from 64-bit Windows Vista Home Premium to Win7's 64-bit equivalent using a Windows 7 Upgrade Kit disc that Gateway provided him after he redeemed his upgrade coupon. Fortunately, Jeff backed up his personal data before the upgrade and only lost the preinstalled programs. Although Gateway's Web site states that "settings in Windows Vista will not be changed when you upgrade to Windows 7," it adds that "some applications may not function correctly if they are not compatible with Windows 7." Gateway also states users should "contact the original application vendor" if it doesn't work after an upgrade. After speaking with a Gateway rep and doing our own investigating, it appeared the preinstalled software should have worked after the upgrade, leading us to believe something during the upgrade process went wrong. We suggested that Jeff could attempt to restore his system back to its original factory settings using recovery discs if he had created them and then try the Win7 upgrade again using a step-by-step tutorial on Gateway's site. (We also informed Jeff that Gateway sells recovery discs on its site.) After receiving our suggestion, Jeff realized he had created application and driver recovery discs after buying the system, which he was able to use to install and launch the programs without performing the Win7 upgrade again. ▮▮

Tech Support Tips

Get Help For Your Home Or Office PC

You know from experience that computers don't always work quite the way you want them to. Sometimes a program takes ages to open, or an error message prevents you from printing an important document. Maybe you've encountered the BSOD (Blue Screen Of Death) a time or two.

Luckily, there's hope. The Smart-People Computer Support team can help you solve your computer woes, whether you're having trouble with your home PC or an office computer. You can pick up the phone and call us as soon as you have a problem, but we'll be in a better position to help you if you've gathered the information you'll need (and learned a few helpful tech support tricks) ahead of time. Read on for tips to make your tech support experience a smooth one.

1 Determine your computer's specifications. When you call, one of the first things that a SmartPeople representative will ask you to do is describe your computer's specifications, such as your OS (operating system), memory amount, and processor type. This will help the representative better understand your computer and determine the cause of your problem. For example, if your computer seems to be running too slowly, and you report that you have 1GB of memory, the team member may conclude that your computer doesn't have enough memory to smoothly run the programs you're using.

Having this information immediately available makes it easier for your team member to diagnose the problem and shortens the amount of time you're on the phone. You can learn about your computer's specs by navigating to Windows' System Properties. In Windows XP, click Start and My Computer and then click View System Information on the top left. In Windows Vista/7, click the Start Button, select Computer, and then click System Properties at the top of the window.

Now that the System Properties window is open, you can easily find your computer's specs. In WinXP, you'll likely find your computer's OS type (32-bit or 64-bit) listed under the System category and hardware information such as RAM and CPU under the Computer section. In Vista and Win7, you'll find all the information you need under the System section.

Tech Support

Write these specs down and have them available when you make your call.

2 Have product information ready. In addition to getting familiar with your computer's OS and hardware specs, it's a good idea to gather information about the software you're using, too, especially if you know or suspect that a specific application is causing trouble. For starters, locate your Windows installation CD (if you have one) in the event that you need to reinstall or repair Windows. Make note of where the product key is located, as you'll need to enter the letter-and-number sequence to use the disc. If you don't have a Windows disc because you bought a computer with the OS preinstalled, you can typically find the product key on a sticker found on the bottom or rear of a PC or notebook. Next, dig up the discs for any relevant software, such as Microsoft Office. Having the software available is especially useful if your SmartPeople rep suggests that you uninstall and reinstall a program.

3 Keep your PC handy. Power on your computer before you call SmartPeople Computer Support. A SmartPeople rep can better diagnose problems when you offer her specific information about the problem. And, she can't troubleshoot an issue if you're not able to try each solution she offers. Likewise, there's no need to extend the time of your call because you're waiting for your computer to boot up and load Windows.

4 Get to know your browser. Often, a SmartPeople team member will instruct you to navigate to a particular Web page. She may ask you to type a URL (Uniform Resource Locater), or

Web address, in your browser's Address bar. It's important to note that the Address bar is not the same as the Google, Yahoo!, or Bing search bar that's typically integrated in your
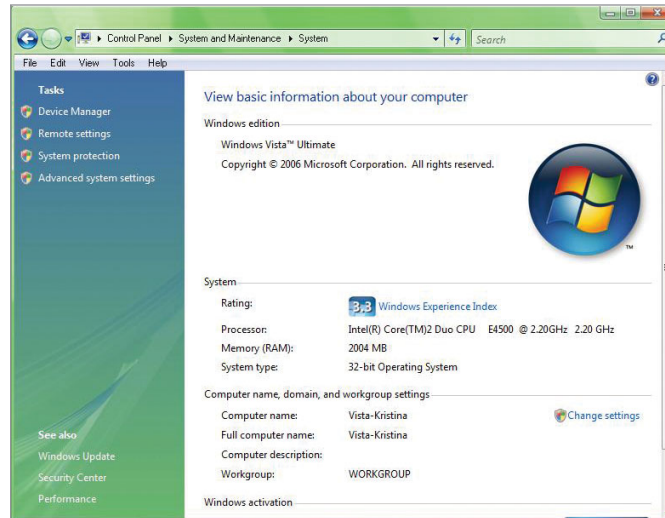
You can learn about your computer's operating system and hardware specs by looking in Windows' System Properties menu.

browser window. Instead, the Address bar is the main text field found at the top center or right of the window and is usually located next to the Forward, Back, and Refresh buttons.

5 Be as specific as you can. Whether you call the tech support line or submit your computer questions via email, make sure you're as specific as possible about the problem you are experiencing. For example, if you're seeing an error message when you start a program or shut down
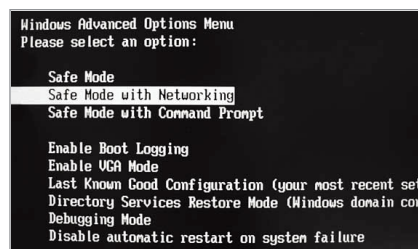
Knowing how to enter Safe Mode can save both you and your SmartPeople rep lost time when troubleshooting.

your computer, write the message down or take a screenshot of the error by pressing the PRINT SCREEN button on your keyboard, pasting the screenshot into Microsoft Paint (which is on all modern Windows operating systems), and then saving the picture to your hard drive. You can share the screenshot with your Smart-People rep to help explain your computer's behavior, which is particularly useful if your computer only acts up now and then. The screenshot can show the exact problem without you having to try to re-create the problem for the representative.

6 Record your Task Order number. During your tech support call, your SmartPeople team member will give you a TO (Task Order) number. This number identifies you and your computer issue in the SmartPeople database, making it easier for team members to review your problem and look for additional solutions if you need to call back a second time. Be sure to write this number down, and if you call back for addition help with a previous issue, give the TO number to your SmartPeople representative so that she can quickly see what solutions you and other reps have already attempted. That said, representatives can find your information and help you even if you lose the TO number.

7 Manage the mouse. Sometimes it's easier for your SmartPeople team member to show how to solve a problem (rather than explain it over the phone). She may set up a connection (with your permission) to your computer via GoToAssist. That means that while she offers spoken directions for solving a problem, she can also remotely move your mouse cursor, open

folders, and install programs while you watch.

If you and your SmartPeople rep set up a remote connection, be aware that the rep can move the mouse cursor only as long as you don't move your own mouse. Moving your mouse takes control away from the rep, briefly.

8 Know how to open Safe Mode. One of the most common troubleshooting tools that SmartPeople team members use is Safe Mode, which loads only the essential tools Windows needs in order to run. If you know how to enter Safe Mode before you call, you can cut down on the number of steps it takes to solve your computer's issue and save time.

To start Safe Mode, turn on your computer and repeatedly press the F8 key, found at the top of your keyboard, while the computer boots. When prompted, select Safe Mode With Networking, which will allow you to access the Internet while you and your SmartPeople rep troubleshoot the issue. ❚❚

BY TESSA WARNER BRENEMAN

Before you call SmartPeople Computer Support, you can check *Smart Computing*'s online resources.

Before You Call

We compiled some easy steps you can take to solve common problems before calling tech support. They may just save you a tech support call.

1 Restart the computer. One of the first and easiest troubleshooting tips you can try before calling SmartPeople Computer Support is to restart your computer. Sometimes your computer can become bogged down if you leave it running continuously, especially for several days. This is often because your computer's system memory is eaten up by perpetually running programs, so when you try to launch a new application, there's not enough memory to support all of the tasks. Restarting your computer clears the system memory and gives your computer a fresh start, which may clear up any sluggishness issues or

application bugs you might have experienced.

2 Use *Smart Computing*'s online resources. In many cases, the problem you're experiencing with your computer isn't new. Others have faced the same frustration and have asked the same troubleshooting questions to find a solution. You can read these questions (and the responses each question received) in *Smart Computing*'s online Q&A Board. Visit www.smart computing.com and then click Q&A Board to get started. (If you are a subscriber, you can post messages to the board.) Another great resource is the Tech Support Center at www .smartcomputing.com/tech support, which has a database of error messages and other info.

3 Uninstall and reinstall. Whether you've been using a

program for several months or just installed it a few days ago, you might see a few glitches from time to time. Portions of the program may not seem to work properly, or you might see error messages that impede your ability to use the program altogether. In cases like these, one of the first troubleshooting tips you should try is to uninstall and reinstall the program. Be sure you have the installation CD or file before uninstalling the software so that you will be able to reinstall it.

To uninstall the software in Windows XP, go to the Control Panel and choose Add Or Remove Programs. In Windows Vista/7, click the Start button, choose Computer, and then choose Uninstall Or Change A Program. Locate the

program's name on the list and then click Uninstall.

4 Contact the manufacturer. If you're having trouble with your computer's hardware or peripherals, such as a laptop adapter, a printer, or a wireless mouse, you may try contacting the product's manufacturer, especially if it is still under warranty. The manufacturer knows the ins and outs of its products and may be able to offer product-specific troubleshooting tips. And if the product is broken but still under warranty, the manufacturer may send you replacement parts or a whole new unit. ❚

SmartPeople Computer Support (800) 368-8304
Online Request:
www.smartcomputing.com/techsupport/contact.aspx
Mon. – Fri.: 8 a.m. to 8 p.m. (CST)

How To Get Rid Of . . .

You didn't intend to, but somehow you managed to download malware onto your system. It can happen to anyone, but how do you get rid of it? If your computer has been infected with a pesky worm, virus, or other malicious intruder that you don't know what to do about, check out our How To Get Rid Of articles in the SmartComputing.com Tech Support Center. You'll find numerous articles on how to remove worms, viruses, spyware, adware, and other nuisances from your system.

1. Log in to SmartComputing.com. Then, click the Tech Support Center link on the home page.

2. Once in the Tech Support Center, scroll down to the Security & Privacy section. Click the How To Get Rid Of link.

3. Click the link for the item you are trying to remove. You will then be taken to a full article that provides a description of the item and tells you how to tell if it's on your PC and how to eliminate it. Some articles provide helpful links to outside sources (Symantec, Microsoft, etc.) that can provide additional information to help solve your problem. Check out these helpful articles today!

Subscribers—make sure to add these helpful How To Get Rid Of articles to your Personal Library by clicking the Add To My Personal Library link in the upper right of the article. Simply log in, and when you find an article you would like to keep, click the Add To My Personal Library link at the top of the page. Create as many folders as you like to keep your information organized and accessible.

Tech Support Center

- Error Messages
- Solutions Knowledgebase
- Basic Troubleshooting Articles
- Security & Privacy
- How To Get Rid Of
- Backups & Data Recovery
- Preventive & Regular Maintenance
- Networking & Communications
- Articles On How To Install … Just About Anything
- Driver Education
- Other Helpful Tech Support Tools

Jan Rajchman

Jan Rajchman was born this month in 1911. According to the *Smart Computing* Encyclopedia, Rajchman "helped revolutionize how computer memory works. His research, specifically in magnetic information handling systems, or core memory, essentially made the cathode-ray tube storage unit obsolete."

Solutions Knowledgebase

Is your PC slow, unable to boot, or crashing? Solve these and other common problems with the solutions offered in the Solutions Knowledgebase section of our Tech Support Center. The Top 25 link is a great place to start.

Hunt Down Solutions

Finding answers to computing problems doesn't have to be as frustrating as the computing problem itself. Start your search of the vast *Smart Computing* database by going to www.smartcomputing.com and clicking Search All Articles on the left side of the page.

Search All Articles ▸

Smart Computing's
Fun Facts & Stats

Survey: Most Of Us Google Ourselves

Admit it: You've googled yourself. According to a recent survey, about 57% of adult Internet users in the United States say they have typed their names into a Web search engine to check up on what the digital info says about them. This is up from 2006, when 47% said they had conducted a search on themselves. With social networking and online usage expanding at a fast rate, it is only expected that the concern over digital reputations and privacy will continue to increase.

GoToAssist

Your Connection To SmartPeople Computer Support

Few things are more frustrating than a computer problem you can't figure out. When your computer troubles leave you stumped, it's time to call the SmartPeople Computer Support Team. (See this issue's back cover for contact information.) After you've described the problem to your tech support representative, she might decide to use the Citrix GoToAssist (www.gotoassist .com) remote computer support program to access your computer and then find and fix the problem.

Remote control tech support programs (such as GoToAssist) allow representatives stationed in a different geographic location to view your computer's desktop and control its mouse and keyboard functions while you are also on your computer. This is called screen sharing, because you are sharing your screen with the technical support representative.

Using GoToAssist with your SmartPeople Computer Support Team representative is a safe way to get the help you need when you need it. A tech support representative will never have access to your computer without your consent, and you will always have control of your computer with the ability to override the representative if you so choose. Plus, you can end the session whenever you want.

In order to use GoToAssist with a SmartPeople Computer Support Team representative, you will need a high-speed (broadband) Internet connection. (A dial-up Internet connection is too slow.) You'll also need to install the GoTo-Assist plug-in into your browser. Although you can use GoToAssist with any Internet browser, our experience has shown that Internet Explorer and Safari (www.apple.com/safari) work best with the GoToAssist plug-in.

Make The Connection

When our SmartPeople Computer Support representative requests to connect to your PC, she'll give you instructions for setting up a connection. Keep this article handy for quick reference:

Go to the *Smart Computing* Live Remote Assistance page. There are two

The Go To Assist link is at the bottom of the left column on the *Smart Computing* home page.
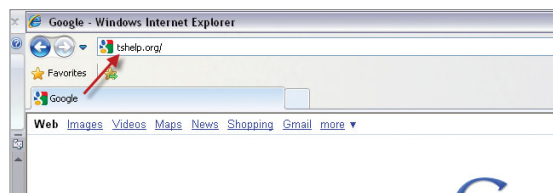
Type **tshelp.org** into your browser's Address bar to get to the *Smart Computing* Live Remote Assistance page.

ways to reach this page. One is to click the Go To Assist link at the bottom of the *Smart Computing* home page. To find it, point your browser to www.smartcomputing.com, and then scroll down the left column until you see the Go To Assist link. You can also get to the Live Remote Assistant page by typing **tshelp.org** into your browser's Address bar (see the "Get On The Same Page" sidebar).

Sign in to GoToAssist. After your tech support representative guides you to the Live Remote Assistance page, she will provide you with a unique connection code, which can only be used one time. Once you have that code, you will have 20 minutes to set up your connection. (That's more than enough time. Chances are, you will be able to connect within just a few minutes.) To connect to GoToAssist from the Live Remote Assistance Web page, enter your first name into the Name text field and the connection code into the Code text field. Click the Proceed button.

Download the GoToAssist plug-in. After you've clicked the Proceed button on the Live Remote Assist page, your computer will start the connection process. Select Run, if prompted to do so, in order to verify the GoToAssist program. If you get an on-screen message that says, "Your representative is ready to meet with you," and a Download Now button, be

Tech Support

Smart Computing

Please fill out the fields below, type your name and the code you received from your Representative, and click the button to proceed.

Name:
Code:

Proceed

◼ POWERED BY GoToAssist™

Type your first name and the unique code (given to you by your representative) into the corresponding text fields.

Smart Computing

Your representative is ready to meet with you
To connect, click the Download Now button.
Click Run if prompted.
Download Now
Problems with the download? Manually download the software. Then save **GoToAssistStarter.exe** to your desktop and double-click it to start.

◼ POWERED BY GoToAssist™
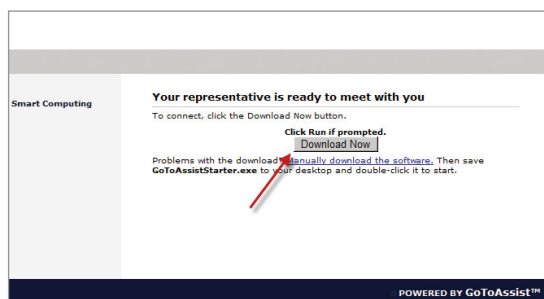
If prompted to do so, click the Download Now button.

Smart Computing

Your screen-sharing session will begin in a moment
Trouble connecting with your representative? Manually download the software.
Then save **GoToAssist.exe** to your desktop and double-click it to start.

GoToAssist
Connecting...

◼ POWERED BY GoToAssist™
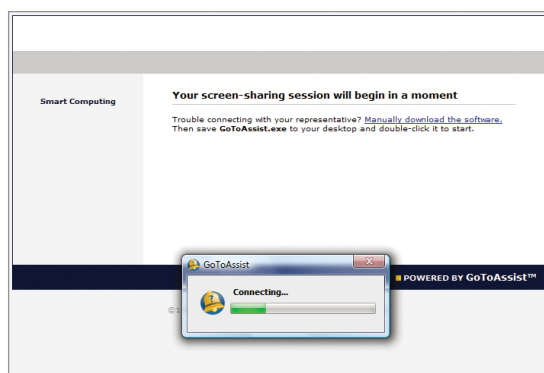
Be patient as your computer connects to GoToAssist.

sure to click the button. The plug-in will then start downloading and move into the initializing and connecting phases. Sometimes the connection or the download will take a minute or more, and a message may tell you that GoToAssist is having trouble connecting. This does not mean the connection cannot be established. Be patient in this situation and eventually you'll be connected.

Finish the connection. When a pop-up box appears and explains you are about to show your screen, click OK. Clicking the OK button will give your representative permission to share your screen.

Once you are signed in to GoToAssist, either of you can make changes to the computer. At this point, it's important not to move your mouse unless you've let the representative know that you intend to do so. Otherwise, she'll be surprised when you take away her control of the mouse.

There are a variety of tools at your rep's disposal. The chat box, for example, will let you and your representative communicate through text messages. At the top of the chat box, there is a tool bar with buttons that let you pause or stop screen sharing, send files, and collapse the chat box. When you click the arrow button, you'll have annotation tools that let you highlight parts of your screen, draw on your screen, stamp an arrow, and more. Your representative will have the same capabilities. For example, if the representative wants to point out something particular on your screen, she can use the highlighter or arrow stamp for emphasis.

You and your representative can also transfer files between each other's computers, which is helpful if your representative needs to install an anti-malware program, for example. Your representative can also copy and paste text using a shared clipboard, and reboot your computer if you are unable to do it yourself. Additionally, your representative can share his screen with you with your permission.

Remember that you control the screen sharing process and can stop at any time. If you decide you want to stop sharing your screen with the representative, click the Screen Sharing button at the top of your GoToAssist chat box, and select Stop Screen Sharing. However, this will not disconnect you from your representative entirely. To disconnect from your representative (meaning you will have no other communication with them other than through the phone), click File, select Exit, and then click Yes.

Once your session is complete, you will be asked to provide feedback regarding your tech support session. This is a chance for you to let the SmartPeople Computer Support Team know whether your experience was positive or negative and whether there are areas to improve.

Although tech support representatives can't appear in your home office to work on your computer, a remote control program, such as GoToAssist, provides the second best option. ❚❚

BY TESSA WARNER BRENEMAN

Get On The Same Page

When your tech support representative decides to use GoToAssist to help you with your computer problem, she will ask you to visit the *Smart Computing* Live Remote Assistance page. The quickest way to get there is to type **tshelp.org** into your browser's Address bar (found at the top of the page) and then press the ENTER key.

Anatomy Of A Browser

Know Your Surfboard

The key software to give you access to the Internet is called a Web browser. Popular examples include Microsoft's Internet Explorer (www.microsoft.com), Mozilla's Firefox (www.mozilla.com), Google's Chrome (www.google.com/chrome), Apple's Safari (www.apple.com/safari), Opera (www.opera.com), and others.

Let's take a look at the user interface of Internet Explorer 8 and its default settings.

Address bar. If you learn nothing else about Web browsing, learn about this. The Address bar tells you the network location of the page you're viewing on the Internet. The URL (universal resource locator), or Web address, in our example is http://www.smartcomputing.com. Actually, this is a translation of the site's numerical IP (Internet Protocol) address, namely 38.101.15.5, which is a lot more understandable to computers than it is to the people using them.

The most important part of a URL is its domain, which in our example is the smartcomputing.com part of the address. The domain is difficult to spoof (fake), so it should tell you whether you're on the right site or a counterfeit page trying to trick you into typing sensitive personal details. In fact, some browsers highlight this section of the Web address to make it stand out.

Note that you can surf to a different Web page by typing a new URL in the Address bar. The Down arrow icon at the right lets you hop to a page you've recently visited.

Back/Forward. This browser navigation convention spilled over into OSes such as Windows. Click the Left arrow to go back to a page you've previously viewed in a Web session. The Right arrow moves forward through the pages in the order in which you visited them.
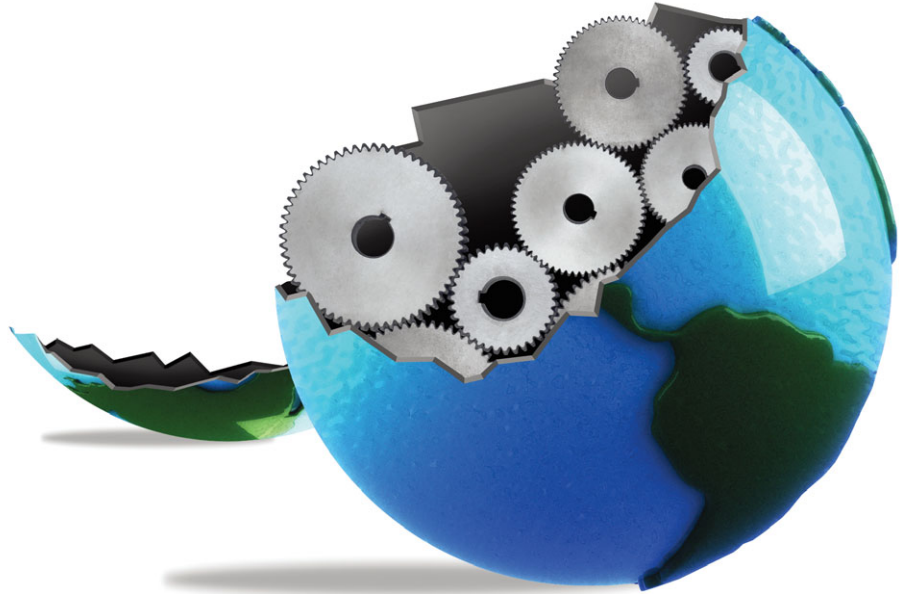
Click the Down arrow icon to jump a few pages further back or forward. Click History if you want to access a page you found some time ago, such as in an earlier browsing session.

Refresh. If the Web page you're viewing is out of date or missing pieces, click this or press F5 to reload the page.

Stop. Click this icon to abort a page load or other data traffic to or from a site.

Search bar. Certain browsers let you use the search engine of your choice with a keyword field like this. Some, such as Chrome, let you type search terms directly into the Address Bar.

Add-on. This is an example of an optional third-party application that integrates with your browser, variously called an extension or add-on. Google Toolbar (toolbar.google.com) lets you search for keywords, share Web page links with a social networking service, translate Web pages to English with one click, and more. It also blocks pop-up ads.

Favorites bar. When you bookmark a Web page, also known as adding it to your list of Favorites, you make it easier to find it again. The star icon with a green arrow is IE8's Add To Favorites button.

Tabs. Here's an Opera feature that has trickled down to virtually every competing browser. Tabs let you keep more than one Web page open at a time. Click the top of a tab—there are three in our example—to change your view to its contents.

By default, clicking a link opens a new page in the same tab. If you want to open it in a new tab instead, press CTRL as you click the link. This lets you open interesting-looking Web

pages for later perusal without de-railing your current browsing thread.

In IE and other browsers, you can save a group of tabs as a Favorite or Bookmark and launch them all with one click. You can even set up your browser's home page—the page it shows when first launched—as a group of tabbed pages that load simultaneously.

Quick Tabs. This IE8 button lets you view thumbnail versions of all open tabs on one page. In other words, every Web page you currently have open in a separate tab will appear in a grid.

Command bar. These icons load your home page, print the page you're on, give you access to browser settings, and more.

Hyperlinks. Click a link to browse to a new page. It's vastly easier to surf this way than to type in a new URL in the Address bar.

Ads. Advertisements pay for most of the Internet, which is free to browse as a result. Be discriminating, though; some ads pretend to be part of the site you're visiting, even though they're unrelated.

Security settings. This Down arrow leads to security options in IE8. Many browsers show a locked padlock icon here when you visit a secure (encrypted) Web page, such as for online banking.

Zoom. If you want to make a Web page and its text larger or smaller, click here and choose a zoom level. Alternatively, try pressing CTRL as you scroll your mouse wheel up or down.

Status bar. Hover your mouse pointer over a link, and you should see its target Web page here. It's generally a good way to check out the target page of a link, especially its domain, before you click it. ❚❚

BY MARTY SEMS

Anatomy Of A Browser

Back/Forward

Address Bar

Search Bar

Add-On

Favorites Bar

Tabs

Quick Tabs

Stop

Refresh

Command Bar

Hyperlinks

Ads

Status Bar

Security Settings

Zoom
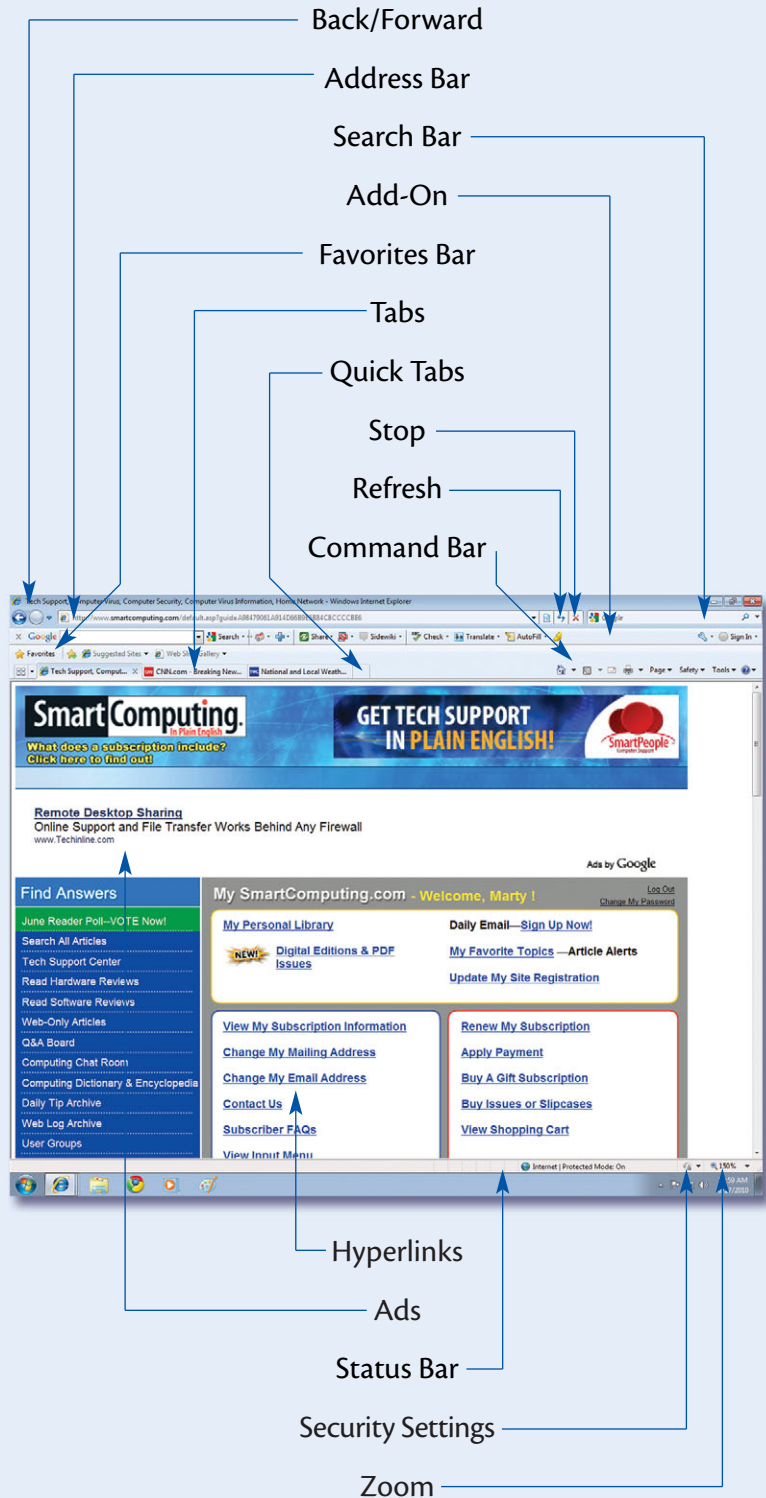
Welcome To The
Tech Support Center
Your Computer Lifeboat When Seas Get Stormy

Smart Computing is much more than simply a magazine (although we like to think it's a very good one). Along with the monthly product reviews, hints and tips, how-to articles, and technical information that the magazine gives you, *Smart Computing* is also your online tech support partner. In fact, the Tech Support section of the Web site is a popular destination for readers experiencing problems or seeking info on a variety of topics (and also some who are simply curious). If you haven't spent much time at the *Smart Computing* Tech Support Center, you're in for a treat; the next time you're in trouble, confused, and getting frustrated, relax. Just use the Tech Support Center's many handy tools to help get you back on track. We'll show you how.

The Tech Support Center Home Page

You can get to the Tech Support Center by clicking the Tech Support Center link or image on the main *Smart Computing* Web site page, www.smartcomputing.com, or by visiting www.smartcomputing.com/techsupport. The main page of the Tech Support Center is your gateway to a wealth of helpful info, and right off the bat, it lists three convenient ways to get started on solving your problem.

Search

First, you can search the entire Tech Support Center (and our article archive)

by entering a keyword or phrase in the Enter A Subject To Search By text box. The system will display a list of useful results, all of it organized by the categories in which those results occur. For example, there may be error messages and explanations listed in the Solutions Knowledgebase section, troubleshooting info listed under Basic Troubleshooting Articles, more articles noted under How To Install…Just About Anything!, and additional information available from the editorial archives.

Post On The *Smart Computing* Q&A Board

If you have a question about computer technology, it's a safe bet that you're not the only one. Someone else—perhaps *many* others—has had the same question. Better yet, that person may have already found an answer to your question, and that answer may be posted on the Q&A Board. To find out, click the Q&A Board link on the main Tech Support Center page. From there you can browse through the

postings or home in on your exact question by searching the Q&A Board itself. (Just click the Click Here link near the top of the page, next to Has Your Question Already Been Asked And Answered?) And if you have information that someone else needs, remember that subscribers are more than welcome to help each other out by answering questions that others have posted.

Contact SmartPeople Computer Support

Yes, *Smart Computing* offers "live" tech support. Our knowledgeable team will answer your telephone calls or emails Monday to Friday, from 8 a.m. to 8 p.m. Central Time. Just call (800) 368-8304 or click the SmartPeople Computer Support link on the main page of the Tech Support Center site and then click Click Here To Send An Online Request. Print subscribers get one free solution and pay $29 per solution after that. (And you pay only if we solve your problem.) Non-subscribers also pay $29 per solution. Our team uses the same plain-English approach that you see in the magazine.

More Useful Support Tools

The online Tech Support Center has something for everyone, including a categorized collection of tips and articles to help you deal with specific situations. There are several categories, and one way to find solutions to problems is to go directly to the appropriate category. If you're trying to install something, decipher an error message, set up a network, find or install a driver, or just about anything else, you can link right to the information you need.

Error Messages. Computers misbehave, and when they do, they sometimes generate error messages. Unfortunately,

those messages tend to be confusing and frustrating much more often than they're straightforward and useful. We can help you with that. *Smart Computing* has compiled thousands of error messages and explained each one in plain English. So, when your Windows XP computer spits out, "Error loading C:\PROGRAM FILES\WILDTANGENT\APPS\CDA\Cd aengine0440.dll. The specified module could not be found," you can do more than just scratch your head and pound your fist on your desk in frustration. (In this particular case, the program may be suffering a problem and the error message database goes on to explain how to remove it.)

SmartPeople Computer Support: The Ultimate Subscriber Benefit

Just click the Error Messages link to browse through the collection or search for a specific error message.

Basic Troubleshooting Articles. When we say "basic," we mean it. These are simple, straightforward, bare bones explanations of how to handle problems with printers, external hard drives, laser printers, and dozens of other devices. If you're having issues with your iPod or you're worried about your Web cam, come here first. There's even an entire section of "What To Do When. . ." articles.

How To Get Rid Of. These days, computer users are swamped by spyware, viruses, and worms—all kinds of nasty malware. It's irritating at best and seriously dangerous at worst. You can relax. *Smart Computing*'s Tech Support Center provides an entire database of articles designed to help you get rid of the nasty little visitors. Whether it's a browser hijacker, an emailed phishing expedition, or a worm, we can help you clean up your computer.

Preventive & Regular Maintenance. Like your car, your furnace, or your

marriage, things in your life hum along much more smoothly when you pay regular attention to them. In this section of the Tech Support Center, we've collected all the articles that deal with maintaining your system *before* disaster strikes. From cleaning out your computer case to cleaning off your hard drive, and from changing your inkjet cartridge to charging your camera battery, it's all there. Go here to head off minor problems before they become major crises.

Networking & Communications. Let's face it, networks are complicated. Newer OSes (operating systems) hide that complexity from us, taking much

Smart Computing offers live SmartPeople tech support, with phones staffed by friendly, knowledgeable experts in Lincoln, Neb.

of the drudgery out of setting up a wired or wireless network: Click a few buttons, answer a couple of questions, a few more clicks, and we're finished. Piece of cake. Well, unless it didn't work. In that case, we're in trouble.

The answer is simple: Now you go to the Networking & Communications section of *Smart Computing's* Technical Support Center. There you'll find general background articles on networking, articles on how to set up various types of networks, and information about how to troubleshoot your network when it stops . . . well, networking.

Articles On How To Install . . . Just About Anything. Whether you've already brought that new router home or whether you're just wondering what would be involved in installing it, we've got you covered. This section can help you install . . . well, just about anything. From printers to scanners and from Blu-ray drives to complete operating systems, we can show you how it's done. So when your geeky nephew tells you that you need to drop in a new CMOS (complementary

metal-oxide semiconductor) battery and offers to come over and help, you can just say . . . well, actually, you know what? You might as well let the kid help. It'll make him feel useful. But if he *hadn't* offered to help, you could have handled it—with our help.

But Wait, There's More

We're not finished yet. In addition to the sections noted so far, the folks at *Smart Computing* have also put together an additional series of helpful tools, including lists of browser and email tips, a computing dictionary and encyclopedia, a compilation of file extensions, and a manufacturer's tech support index. Just look at the final entry on the right-hand panel menu or scroll down to the very bottom of the main Tech Support Center page and look for the Other Helpful Tech Support Tools heading.

If you'd like a fast way to access all of these tools, take a look at the menu on the right-hand side of the main Tech Support Center page. This menu contains links designed to take you right to collections of information in each of the major support categories. By clicking a link in this panel, you can go directly to each section of the Tech Support Center.

More Help, Still "In Plain English"

You've always trusted *Smart Computing* magazine, and for good reason: It's the publication that gives you straightforward computer advice and tech support help "in plain English," and has done so for more than 20 years. The online Tech Support Center is another way we at *Smart Computing* can make sure you get the most out of your hardware and software. When in doubt, in trouble, or just inquisitive, be sure to check out the *Smart Computing* Tech Support Center. We're here to help, in print *and* online. ▐▌

BY ROD SCHER

The *Smart Computing* Tech Support Center:
Your Guided Tour

Tech Support CENTER

Tech Support CENTER

Search The Tech Support Center

Plain-English Tech Support In Three Easy Steps

Tech Support CENTER

Step 1: Search the Tech Support Center—Just type a keyword in the box below to search our extensive database of solutions as well as our complete article archive!

Enter a subject to search by:

[   ]

[Search]

Q&A

Step 2: Post your question on the interactive Q&A Board.

SmartPeople

Step 3: Contact the SmartPeople Computer Support team by phone or email. Pay just $29 per solution (one free solution included with the cost of a subscription). You only pay if we solve your problem!

Tech Support Center

Error Messages
Solutions Knowledgebase
Basic Troubleshooting Articles
Security & Privacy
How To Get Rid Of
Backups & Data Recovery
Preventive & Regular Maintenance
Networking & Communications
Articles On How To Install ... Just About Anything
Driver Education
Other Helpful Tech Support Tools

12 issues, just $29. Plus, you'll receive full Web site access and one free solution from the SmartPeople Computer Support team!

First Name: Fred
Last Name: Schneider
Address: 2228 Sandstone Rd
City: Lincoln
State: Nebraska
ZIP: 68516
Email: fred-schneider@sa
OMPUTING!

Error Messages

If you're getting a specific error message, this is the place to start.

Browse Error Messages Alphabetically (Try this first.)
Search By Error Message Text

Basic Troubleshooting Articles:

Error Terror—Your PC's Scary Messages Can Help You Resolve System Conflicts
Big, Bad & Blue—Understanding the "Blue Screen of Death"
Coping With PC Anxiety—Tips & Techniques For Stress-Free Troubleshooting
A Helpful Hand—Debuggers Let You Record

Solutions Knowledgebase

Solutions to the issues we hear about the most.

Browse A List of Common Problems & Frequently Asked Questions
Search The Complete List
Top 25

The Tech Support Center offers three easy ways to find answers to your questions: Do a search by keyword or phrase, check out the Q&A Board, or call or email the SmartPeople Computer Support team.

No need to scroll; on the right-hand side of the page, you'll find links to all the major categories of issues. Click one and it will take you to that section on the main Tech Support page. From there you can click your way to the specific information you need.

There are thousands of error messages, many of which are cryptic and confusing. The *Smart Computing* Tech Support Center maintains a database of them, along with "plain English" explanations of each and every one.

Someone has solved just about every problem you could possibly run into. We've catalogued those problems—*and* their solutions—and compiled them into an easy-to-search list. If it's a common problem or a frequently asked question, it's probably here.

Basic Troubleshooting Articles

We've assembled a comprehensive list of articles that start at square one and work you quickly through all fundamental checks and tests.

Sample Articles:
Troubleshooting Email
Troubleshooting Cable/DSL
Reinstall Windows

View ALL *Basic Troubleshooting* Articles

What To Do When...

Security & Privacy

It's called **malware**—destructive viruses and worms, intrusive spyware and adware, and nuisances like spam email and unwanted pop-ups. (Read "A Malware Primer.") Check our Web log for the latest news and read our Basic Troubleshooting articles to learn how to diagnose and combat them.

How To Get Rid Of ...
We'll tell you what to do to eliminate malware programs from your computer.

Web Log:

Facebook Privacy Critics Challenge Zuckerberg To Make More Changes
The ACLU and other groups propose a six-point plan for Facebook to follow to improve its privacy and security controls. But the social networking site...
Dated:6/17/2010 10:16:57 AM

More▶

Basic Security & Privacy Troubleshooting Articles:

Browser Hijackers	Spam
Fake Web Sites	Spyware
Malicious Ads	Trojan Horses
Phishing Email Messages	Viruses
Rootkits	Worms

Backups & Data Recovery

Every disk drive in existence will stop working one day; count on it. If a drive failure would be a major disaster in your life—or even just a terrible nuisance—move forward and back up.

Sample Articles:
Backup Basics
Data Recovery Basics
Create Emergency Boot Disk

View ALL *Backup & Data*

Preventive & Regular Maintenance

It's really pretty easy, it doesn't take very long, and it's a whole lot better than having to buy a whole new PC.

Sample Articles:
Maintenance Basics
Clean A Full-Size Keyboard
Leave It On Or Shut It Down

View ALL *Preventive & Regular Maintenance* Articles

Networking & Communications

Installing and configuring your home network properly in the first place is the surest way to avoid problems. Whether you're considering installing one, about to begin, or if you're experiencing problems now with your home network, this section's for you.

Sample Articles:
Setting Up A Wireless Network
Troubleshooting Wireless Networks
Setting Up Printer Sharing

View ALL *Networking & Communications* Articles

Articles On How To Install ... Just About Anything

Use these as step-by-step installation guides, or just scan them to see what you'd be getting into if you're considering a hardware or software upgrade or replacement. Whatever the case, life is easier when you do it right the first time.

Driver Education

Drivers—they're the little software programs that help your computer manipulate the various devices attached to it. But they can become lost, corrupted, or outdated. Read all about them, including where to find and download all the latest versions.

View ALL *Driver Education* Articles

Other Helpful Tech Support Tools

Tips For Using Browsers & Email

Computing Dictionary & Encyclopedia

List Of File Extensions With Explanations

Manufacturer Tech Support Index   Updated!

October 2005 PC Novice 'The INSTANT ANSWER Book For Your PC'
Missed it at the newsstand? Here's a link to every article in this answer-packed special issue. Articles are written in a concise, problem-and-solution format.

We can tell you everything you need to know about malware and security-related concerns.

When we say "basic," we mean it. Most problems, frustrating as they are, have simple solutions; you just have to know where to look. Here's where you look. If you're having trouble with your printer, your email, or anything else, check these out first.

Security concerns? We've got you covered. Whether you're worried about spyware and how to get rid of it or you're just curious about privacy issues, take a look at the Security & Privacy section. We can tell you everything you need to know about malware and security-related concerns.

Someday, your drive will stop working. Really. Will you have backups made? If so, will you know how to restore them? Read these articles when disaster strikes. Better yet, read them *before* disaster strikes.

The Preventive & Regular Maintenance section will help you keep your system in tip-top shape so you can head off problems before they become serious issues. And if you're not sure what makes your network tick—or what made it stop ticking—take a look at the Networking & Communications section.

No matter what you're trying to install—a router, a printer, or an entire operating system—this section can help you over any rough spots. Step-by-step installation guides get your gear going or help you make an informed choice by explaining what's involved in setting up that new gadget.

Whether you're looking for information about drivers, seeking tips on using your browser or email, or looking for the definition of a computing term, we're there for you. The *Smart Computing* Tech Support Center can help you with all of these, and more.

Recover Lost Files
Dig Out Your Data

You've probably seen a few pics of trashed computers—sad-looking systems sitting in flood waters, charred remnants of hard drives after a fire. And you've no doubt heard or read some horror stories about computing mishaps, such as someone fumbling a laptop in the Grand Canyon.

These serve as cautionary tales. In many cases, the real loss isn't the computer itself, but the cherished digital photos, the expensive iTunes collection, and the financial records of a home business. The moral of the story, of course, is to back up your data (see our "Backup & Restore" section beginning on page 102 for detailed help).

That said, you can't go back in time. Life doesn't give you free do-overs. If you didn't make a backup before your PC's tragic accident, you can't just say, "Wait! Redo. I wasn't ready."

When you find yourself in this situation, and it's an unhappy one, take heart. Most of us have been there, too. Whether your data loss stemmed from accidentally pressing SHIFT-DELETE, water damage from a leaky skylight, or the tire of an SUV . . . it really doesn't matter. What matters is what you do next.

Let's put aside the cost of hardware replacement or repair for just a moment. Instead, let's focus on recovering as much data as possible.

For this operation, nothing matters but your PC's mass storage device, which is probably a hard drive. Forget about the processor, the RAM, and aught else—they're not where your data is.

The hard drive is the key. And the less you attempt to use it, the greater the chance that the magnetic patterns of your data still exist in a form that can be retrieved by the right software or professional service. All bets are off should the drive be physically damaged, but you might take some comfort from recovery service anecdotes about data they've rescued from broken and even burned devices.

This issue of *Smart Computing* has a feature section that is potentially the most important one you'll ever read in these pages. When you've lost critical data, its safe recovery suddenly takes a priority position. What we've done is to pull together plain-English articles to help you rescue your lost bits and bytes.

"Recover Data After A Natural Disaster" on page 62 gives you guidance after the unthinkable happens. Your family's safety and shelter tops your priority list in the short term, of course, but when conditions permit, you can focus your attention on reconstructing your digital life.

Everyone deletes files. Sometimes, we don't even pay attention to the little "Are you sure?" messages from our OSes (operating systems). We yawn, we click Yes, and if we turn out to be wrong, well, we can always find the files again in the Recycle Bin. Except that some deleted files don't wind up in the Bin. Some are too big to fit in there. Others were on flash drives or other removable media and missed the safety net of the Bin on their way down. "Recover Data After A Human Error" on page 65 tells you what to do when your deleted files really are deleted instead of just pretend-deleted.

Mobile computing is on the rise, as a glance around any coffee shop or campus will demonstrate. Murphy's Law hasn't been revoked, however. Whatever we carry, we'll eventually drop, and that includes our computers, unfortunately. Trot on over to "Recover Data From A Damaged Notebook" on page 68 if this scenario describes your recent history.

An ounce of prevention is worth a pound of cure, they say. No, we're not going to harangue you again about backing up your files, but we will tell you about another way to protect your data from future misadventures. "Tough Enough" on page 71 presents you with "ruggedized" drives and other products that can help safeguard your files from physical shocks, moisture, dust, and other hazards. ❚❚

BY MARTY SEMS

RECOVER DATA AFTER A NATURAL DISASTER

Data Experts Can Work Miracles, But It'll Cost You

It's a homeowner's or renter's nightmare: You return from vacation or a business trip, tired and cranky, pull up in front of your home, and discover that there's been a fire or flood in your absence. Your first thoughts are ones of thanks: No one was hurt; the house or apartment is still standing. It could have been so much worse. But then you start to think of all you may have lost: clothes, furniture, electronics gear, and keepsakes.

Still, you tell yourself, it's just "stuff," and almost all of it can be replaced. And then it dawns on you: What about your computer—and what about all of the irreplaceable data that resided on its hard drive?

If your computer has been in a fire or flood, you're going to have a data recovery problem. At best, it'll be irritating and potentially costly. At worst, all of that data is simply gone forever.

Your Fragile Hard Drive

Hard drives are delicate things. Data is saved on disk platters something like the magnetic "cookies" we remember from those old 5.25-inch floppy diskettes. The platter spins at a high speed, and electromechanical arms bearing read and write heads quickly snake out over the platter as it rotates at 7,200rpm or more, trying to align the head with the piece of the platter bearing the needed data. It takes time to find that data ("seek time," in the jargon of the computer hard drive aficionado), and it requires superbly aligned and balanced drive arms and heads, all controlled by software capable of accurately positioning those arms and heads in a split second. It's a delicate balance; upset it and your hard drive no longer works.

And it doesn't take much to upset that balance. If you were to take the

Although a hard drive's platter is fairly sturdy, the arm and read/write heads that access the data on that platter can easily be jostled out of position, destroying the drive.

drive out of your computer, hold it straight out in front of you, and let go, that 4- or 5-foot drop—even onto carpet—will almost always destroy the drive. Thus, an important and hard-learned lesson: Be careful when moving a standard hard drive (or a computer containing such a drive).

A typical hard drive simply will not tolerate much abuse. "The platters are extremely delicate," says Joe Keys, president of New Jersey-based Data Recovery (www.data-recovery-labs .com). "If you even knock the drive over on its side, it probably has been damaged and will fail—if not immediately, then within a short period of time."

A fire of any sort will ruin the drive, Keys notes. "We have done work for fire departments and insurance companies and have discovered that if the heat reaches the Curie Temperature—the temperature at which a material's properties are affected; in hard drives, that's about 450 degrees Fahrenheit—the magnetic properties of the platters will be lost."

It doesn't take much heat to warp or burn the drive's platters or electronics, and even the smoke from a fire can damage a drive enough to interfere with its functionality. A flood of any magnitude will usually render an electromechanical drive useless. (However, its data may still be recoverable.

See the "Professional Recovery Options" section in this article.)

Interestingly, most drives can handle cold just fine. If your hard drive is exposed to freezing weather, just let it warm up slowly and dry it out completely before you attempt to use it. In fact, Keys says, some techs freeze drives as a part of the data recovery process. "I have recovered data from stuck heads by freezing the drive for 20 minutes and then powering the drive up briefly; sometimes a gentle tap will then release the stuck heads," he says.

We put one in the freezer for several days; it didn't hurt it at all, although its presence occasioned several snide remarks about how writers should keep their spare computer parts out of the kitchen.

Still, a house fire, a flash flood, a broken water pipe, a tree crashing through a roof and letting in a heavy rainfall, a tornado that smashes a piece of furniture into your computer—these sorts of disasters are all likely to damage your drive.

Recovery Options

And yet, all is not lost—maybe. If your drive suddenly gives up the ghost but the damage is not due to physical trauma, there are commercial recovery options, some of them produced and sold by the very people who also do
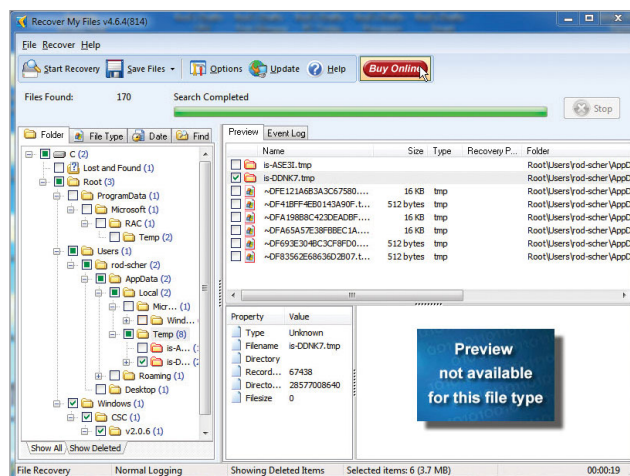
White Canyon's Recover My Files is typical of consumer-oriented data recovery applications.

sophisticated, hands-on, forensic-style recovery work.

Commercial recovery software. Kroll Ontrack, for example, operates one of the largest and best-known hands-on data recovery services, but it also sells software to help consumers at home recover from data loss. Ontrack's EasyRecovery Data-Recovery application ($199; www.kroll ontrack.com) can be used to find and restore deleted or corrupted files. Trial editions are available, and the utility can be used with Windows XP/Vista/Server 2003 and any media. It can also retrieve and repair zipped files.

White Canyon's Recover My Files ($59.95; www.whitecanyon.com) is another well-regarded data recovery application. The software can recover files lost due to deletion, accidental format, or virus infection, and it gives you the option of previewing a deleted files list prior to recovery.

Total Recall offers Total Recall Home Edition ($99.95; www .totalrecall.com), a recovery tool that includes 500GB of online storage space for data recovered or put aside for safekeeping. The utility supports not only

internal PC hard drives but also iPods and removable drives.

Commercial recovery applications such as these are handy if your data becomes inaccessible due to a touchy drive or corrupted file system, and they're especially useful when you're attempting to head off an impending drive crash. (If your drive begins making that telltale "clicking" sound, it could be signaling an impending data disaster, and tools such as these can be used to move files off of a suspect drive before disaster strikes. Of course, your regularly used backup program can also be used to move files to safety. You are backing up regularly, right? Right?)

Professional recovery options. There comes a time, though, when your only recourse is to call for help. Although your drive's mechanical contrivances are fragile and finicky, the platters themselves are made of stronger stuff. It's entirely possible—common, in fact—for a drive to stop working even though the data itself is still stored in readable form on the platter; it's just that the heads, for one reason or another, cannot access that data. When that happens, it's time to call a professional.

"Skilled data recovery shops can clean smoke, dust, and small debris from the hard drive platters to get them back in working order," says Matt Churchill, director of digital

This 256GB solid-state drive contains no moving parts and can withstand a level of trauma that would destroy a standard drive.

forensics for Omaha, Neb.,-based Continuum Worldwide (www.contin uumww.com). "Data recovery specialists can replace parts of the drive assembly or even move the platters from the broken drive to a new, working drive."

In one well-known case, recovery experts from Kroll Ontrack were able to recover 99% of the data from one of the drives aboard the space shuttle Columbia, which disintegrated during re-entry in February 2003. (Note, though, that it's not always possible to retrieve data: Two other drives aboard the shuttle were so severely damaged that no data could be recovered from them.)

Much of the time, skilled technicians can recover a drive's data, usually depending on how long after the crash they receive the drive. "People will usually try everything they can to get their drive working again; then, they take it to 'the local tech guy,' who knows just enough to mess it up even more. Then we get it," Keys says.

If you need to engage a professional recovery service, be prepared to spend some bucks. Keys notes that, depending on exactly what's wrong with the drive, his company charges anywhere from $200 to $900 to effect a recovery; if the platters themselves are damaged, the process can cost you up to $1,500 just for labor—parts, if needed, are extra.

Lessons Learned

Expensive? You bet—but those prices are in line with quotes by other recovery companies. The bottom line here, literally, is that data loss can be costly. And the main lesson learned is to avoid putting yourself in that position in the first place.

Back it up. Rule No. 1: Back up your data. Frequently. Regularly. "If you get lazy and don't back up all the time," Keys says, "be prepared to fork out the bucks. If your machine seems to be slowing down, expect imminent failure; back it up and take it to your tech

guy. If you add software or modify your computer, back it up again."

Here's a corollary to rule No. 1 (call it rule No. 1a): Storing your backup in the same place as your system is not a smart move. The flood that destroys your hard drive might also destroy your backup. Instead, back up your data to the Internet using a cloud-based backup service, such as Mozy (www.mozy.com), IBackup (www.ibackup.com), or Box. net (www.box.net). Or back up your home system to an external drive that you keep at your office.

SSDs. The new SSDs (solid-state drives) are another option to consider. They're rugged devices that are much tougher than standard drives and can stand up to all sorts of mistreatment. Churchill says, "Solid-state drives often fare better when it comes to extreme conditions. Since they have no moving parts, they can take a little bit more abuse."

SSDs command a premium price, though. A solid-state drive might cost half again as much as a standard drive of a comparable capacity. A 256GB SSD can cost $600 or more; these days, that's more than most of us spend on the computer itself.

Thumb drives. As a backup medium, USB thumb drives are becoming increasingly viable. Capacities are growing (experts at Corsair and Patriot

USB thumb drives, such as this Flash Voyager from Corsair, are rugged and convenient, and capacities are increasing.

Memory have told us that we'll be seeing 1TB [terabyte] or larger thumb drives in the near future), although the larger-capacity units remain expensive: A ruggedized 128GB Corsair Flash Voyager USB drive runs about $300, while a standard 1TB internal hard drive offers 10 times the storage at about one-third the price.

Still, thumb drives make appealingly convenient backup possibilities. You could certainly back up much (or perhaps even all) of your critical data to a 128GB thumb drive. And, flash drives are quite rugged. "I've accidentally sent a couple of USB flash drives through the washing machine, and they were still usable after they dried out," Churchill says.

Be Prepared

In the end, nothing separates you and your computer from catastrophic data loss except pure luck, and luck is not something you want to count on. So don't. Instead, prepare yourself for the worst. If you suffer through a natural disaster, don't add data loss to your list of worries. Instead, back up your data regularly and remember that there are professionals out there who can recover almost anything—for a price. ▮

BY **ROD SCHER**

Recover Data After A Human Error

Don't Let A Mistake Hurt Your Business

We're all familiar with that sinking feeling. It follows the realization that you've just deleted something important, such as an Excel spreadsheet containing a year's worth of important customer data. "Oh, no! How do I get that back?" We're here to help answer that question. As soon as you realize something's gone, the first thing to do is stop. Stop working, stop saving, stop downloading, stop installing. Stop everything. The last thing you want to do is overwrite "deleted" data, which is probably not deleted at all, with something newer. Also, make sure you don't let any backups or hard drive maintenance utilities run because they can also overwrite or corrupt valuable sources of data recovery. In this article, we'll help guide you through what to do next.

Simple Solutions

Start with the obvious. If you've simply clicked or pressed DELETE by accident or removed an entire folder (and all its contents) without meaning to, your data might just be sitting in the Windows Recycle Bin. Open the Recycle Bin on the drive where your data was stored—there's a bin for each drive—and browse the directory. Right-click your item and select Restore from the context menu to send the file or folder back to its original location. You can't open items directly from the Recycle Bin, so if you're confused between a couple options, restore them both and investigate from Windows Explorer.

Data deletion doesn't always involve files or folders. When you're working in an application and accidentally delete something, try looking for an Undo option. In the Microsoft Office suite and in other prominent commercial products, this functionality is standard and is usually found under the Edit menu or activated with a CTRL-Z keyboard shortcut. Other applications may use different conventions; check the Help menu or users guide for specifics before giving up in frustration.

Similarly, most email clients and Web mail applications include Deleted Items or Trash repositories that work like Recycle Bins. By default, when you delete a message, the message goes to the Deleted Items or Trash folder rather than actually being removed. Simply navigate to the appropriate folder and retrieve your discarded data. Microsoft Office, on the other hand, includes an AutoRecover feature that detects when an Office application crashes unexpectedly, leaving unsaved data in progress. In other applications, and in times past, there's little to be salvaged beyond a valuable lesson to "save early and save often." But with AutoRecover, you can simply relaunch the application and let it try to recover the latest version auto-saved before the crash. You'll be amazed at how often Microsoft Office can recover a large document that might otherwise have been lost forever.

Windows' Search tool is another easy means for finding otherwise lost data. Sometimes, what looks like a deletion turns out to be simply misplaced via errant drag-and-drop or folder name confusion. In Windows 7 and Windows Vista, just type a known
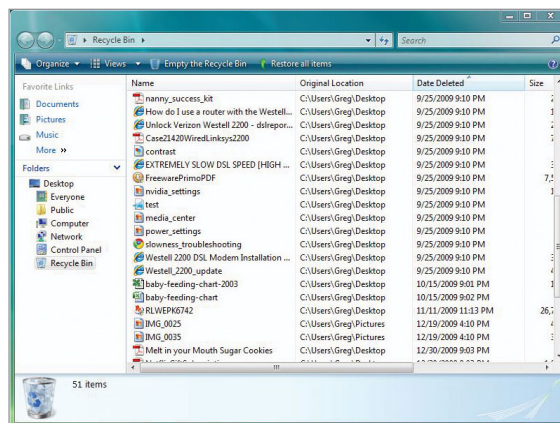
Check the Recycle Bin first for deleted files; it's obvious but easy to overlook.

(and unique) portion of the file name in the Start menu's Search box and press ENTER. In Windows XP, the best method is to open the Search option from the Start menu, enter your file name, and browse to make sure your location parameters are set correctly. If your initial search doesn't yield results (or yields too many), try using advanced options. For example, include a wildcard (*) in your search term, specify a location, or try searching for a word or phrase you know is in the contents (but not necessarily the name) of the file. Also, make sure your search includes all files, including hidden or system files. This might help recover file fragments or temporary files stashed in secret locations.

Next Steps

The basic Windows Search isn't limited to file name searches when finding elusive files. Particularly if you've accidentally changed the name of a file or folder, or suspect some other process of doing so, you'll have a hard time with the standard name search. Expand your search by removing any name criteria and using the other available fields. Try looking for all files of a certain type, modified in the last day or week or month, or in a particular size range. Don't be afraid to cast a wide net and sift through a ton of results. Sometimes, brute force searching pays off.

Next, look to your backups. Ideally, you should have some sort of daily process that copies your data to another drive or location where you can browse to pull out specific files or folders. This is especially true for SOHO (small and home office) users who may work with sensitive files on a daily basis. If you accidentally delete something that could potentially have been included on a recent backup, navigate to the drive (or online storage site) in question and see what your backups have for the most recent version of what you lost. Some backup utilities don't create a directly navigable

replica of your file system in another location. Instead, they wrap up and compress your data into proprietary files that you must then restore in order to gain access to your backed-up information. If your backup system utilizes this method, perform a restoration but make sure you do so in a new location. Restoring your backups on the drive where the data was lost can overwrite any hidden data, which might actually harm your cause if the backup isn't successful or isn't recent enough to be useful. Use a separate external drive, or even portable storage, to restore and recover your data. If, on the other hand, you've just found yourself caught short without backups, now's the perfect time to start making sure you back up

your personal data regularly, with periodic checks to make sure the data's backing up correctly.

Finally, if searching doesn't work and AutoRecover isn't applicable or helpful, there's another way to try and hunt down missing files. Browse or search your drive via Computer (or My Computer) for temporary or fragment versions of your old files. These are often left abandoned during a system or application crash and even during regular application functioning. Look for files containing a "~" character or for any folder with the word "temp" or "tmp" in its name. You will probably have to sift through a lot of true data junk, but you may find some of your raw material from which
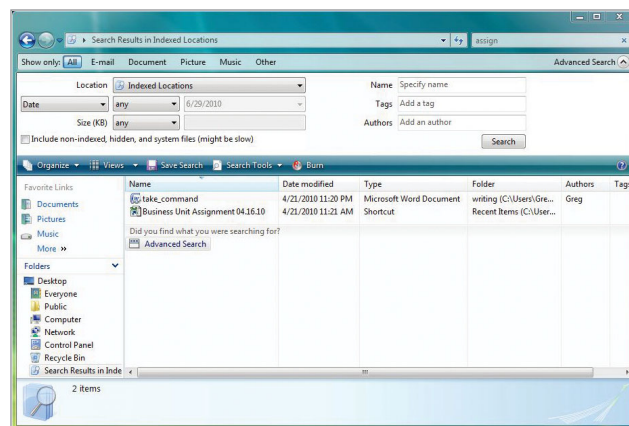
A tool as simple as Windows' Search option can be a powerful means of finding lost files and folders.

When You Want It To Be Permanent

Sometimes, you're less concerned with recovering deleted data than with trying to prevent other people from retrieving it. Business documents, personal records, and any other sensitive information should all disappear permanently once you're sure you no longer need the copy in question. It should also go without saying that any drive you're disposing of should be wiped clean beforehand. Simply emptying the Recycle Bin or Deleted Items or pressing SHIFT-DELETE to remove files and folders doesn't go nearly far enough.

When donating (or selling) outdated office equipment, what you need is a reliable, user-friendly, and affordable file-shredding utility. File-shredding utilities are built with the sole purpose of overwriting the drive location of unwanted files and folders, often many dozens of times, with new nonsense data that makes the original information irretrievable. There are several reputable freeware and commercial products available for download, such as File Shredder (free; www.fileshredder.org) and R-Wipe & Clean 9.0 ($28.99; www.r-wipe.com). Paid products generally offer more options and greater flexibility as in, for example, R-Wipe & Clean's scheduling option.

to piece together at least some of what was lost.

The Heavy Hitters

If Windows' standard tools and your backups still leave you short of success, move on to specialized software designed to scour drives for data that the OS (operating system) can no longer find. These recovery tools rely on the fact that Windows doesn't actually remove data when it deletes a file. It doesn't even necessarily remove the data when you reformat, repartition, or defragment a drive. Only when "deleted" files are physically overwritten by new data are they actually gone (and perhaps not even then). That's great news if you're trying to restore accidentally deleted data and have the software tools to find those bits from the drive that remain, lurking hidden but not yet overwritten.

You can search online and review dozens of undelete utilities. We're partial to freeware, as long as it's robust enough to cover the most-needed functionality and from a reputable source. Pandora Recovery 2.1.1 (free; www.pandorarecovery.com) can recover deleted files or fragments (when part but not all of a file has been overwritten) from NTFS (NT file system) and FAT (file allocation table) drives using a variety of methods applicable to different types of files. Pandora also
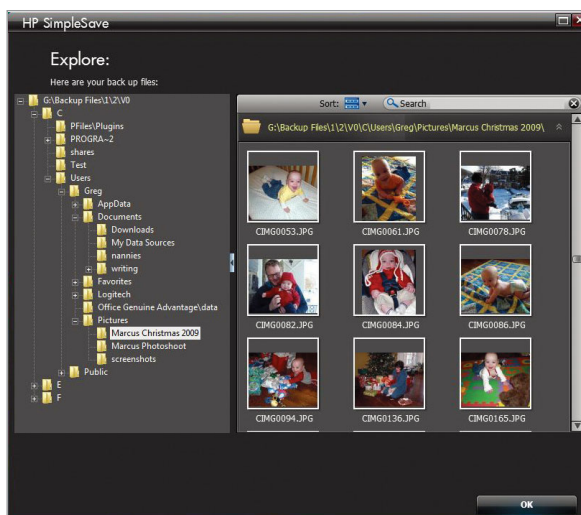
Don't forget about your backups as a valuable source of data recovery.

gives you the option of previewing certain file types before restoring them, so you can see if you have the right data before putting it back on your drive.

Another option is the full paid version of the Recover Files 3.24 application ($34.95; www.undeleteunerase .com), which has a streamlined interface, offers plenty of search and filter options, and even displays information around files that are completely overwritten or corrupted. Many such utilities find and retrieve a wide variety of files on many kinds of drives (including USB thumb drives and network storage). Mostly you should find an interface you're comfortable with that provides coverage of the types of data you're most likely to need help finding.

Whichever product you choose, the best plan is to install something now—before you need it—so you don't have to start searching after disaster strikes. If you're reading this too late or just never got around to heeding our advice, download and install one of these utilities to a different drive (such as a flash drive or external hard drive) instead of your machine's primary drive. Wouldn't it be tragic if your new data recovery utility ended up overwriting the very data you're trying to recover?

The ultimate last step, when all else fails, is to call in the professionals. Companies that specialize in data recovery services abound, including your local Best Buy's Geek Squad, but you should take stock before engaging them. Their expertise doesn't come cheap, and it may take some time to turn around your hardware. You're also unlikely to get any guarantees. If you're willing to pay the price, however, there's almost always a way to get valuable data back. Check out the previous article, "Recover Data After A Natural Disaster," for more information. The focus is on recovery from damaged drives, but most of the professional service possibilities still apply.

Don't Panic

As with any other crisis, when faced with potential data loss, the best advice is not to panic. Stop what you're doing, take stock of your resources and options, and formulate a plan. Try some basic steps, such as checking the Recycle Bin or Deleted Items, and then move onto performing a search before calling in the backups. Finally, consider specialized software and services if the lost information warrants the extra time and cost. Take comfort in knowing that the data is rarely truly lost. It just sometimes takes a little extra effort to find it. ▐▐

File recovery utilities scan for files that are no longer accessible to the operating system but have not yet been physically overwritten on the drive.

BY GREGORY ANDERSON
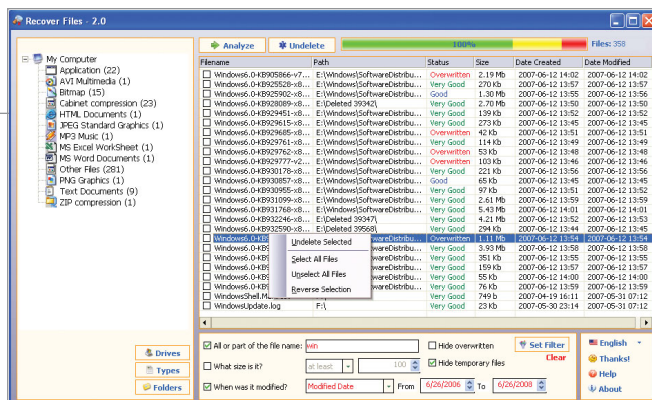
RECOVER DATA FROM A DAMAGED NOTEBOOK
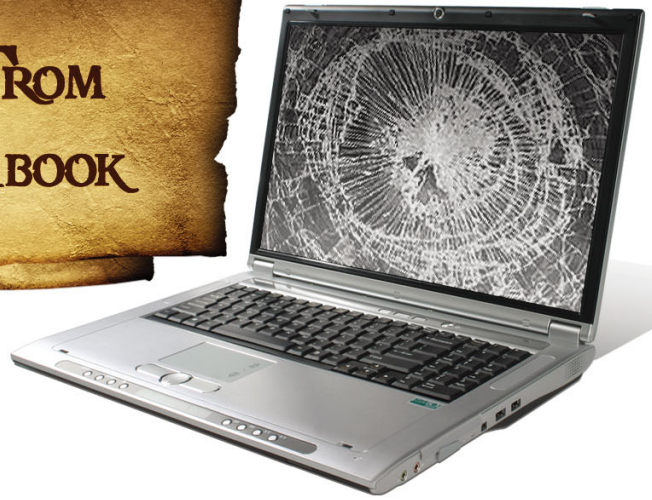
Don't Let A Mistake Hurt Your Business

If you own a laptop, it will happen to you eventually. You press the Power button and . . . nothing. You drop it, and the screen breaks. A power surge takes out one critical component, rendering the laptop useless. There isn't much you can do to stave off wear and tear, accidents, and nature, but as long as the hard drive is intact, you can still get your data off the machine. All it takes is a few basic tools, a little know-how, and an available PC you can use to access the trapped data.

Of course, there are a few caveats. Most laptops are not designed to be user-serviceable, meaning you likely must do some damage to get to the hard drive. If you want to salvage the laptop, take it to a shop and have a pro repair it.

Also, in some cases, removing a laptop's internal components—or even opening any part of the case other than the battery cover—voids your warranty. If the laptop is still under warranty, check its documentation with the manufacturer to see if it allows users to replace the hard drive. If it is out of warranty, let's get under the hood.

Prepare For Rescue

You'll need a few supplies before diving in. Get the laptop's documentation first and see if there are instructions for removing the drive; usually there aren't, but they're a real time saver if you can find them.

Check the screws on the bottom of the laptop to see if you can use a small

Check to see if your laptop has an access panel that lets you get to the hard drive.

Phillips-head screwdriver or if a special star-headed Torx screwdriver is necessary. There are special PC toolkits containing everything you'd ever need, but you can often save money by checking first and purchasing the proper tool. A small flathead screwdriver also is indispensible for prying up plastic latches

and getting between plastic seams to release various parts of the case.

Laptop manufacturers have a thing for using as many tiny screws as possible and using multiple types of screws. Get some magnets to suck them out of the screw holes and ensure they don't have a chance to go anywhere.

Often, you must remove your laptop's keyboard to access and remove hidden screws before seeing the hard drive.

Laptop cases are cramped. Get a small flashlight so you can peer inside if necessary.

Laptops have many little internal pieces, and taking them apart quickly leads to chaos. This means that if your laptop is user-serviceable, and you want to reassemble it, your most

important tool is a digital camera. Take plenty of pictures as you work through the hard drive removal process, so if you need to put everything back together again, you can simply work through the pictures in reverse order.

Finally, you need something to connect the laptop's hard drive to a PC once it's removed. The easiest, least expensive, least dangerous option is an external enclosure or adapter cable. An external enclosure is a hard case that you insert a drive into; it has an interface cable to connect it to a PC. An adapter cable is simpler and merely connects a power cable and interface cable to the drive without requiring you to put the drive in a case. If you go this route, get an adapter cable that has as many different types of computer motherboard interfaces and hard drive power cables as possible. It makes the cable look messy, but the extra versatility is worth it. An adapter cable that supports both SATA (Serial Advanced Technology Attachment) and IDE (Integrated Drive Electronics) interfaces covers all the bases, and we

cable in the PC, disturb or damage a component, or cause other problems. Also, laptop drives have interfaces that often differ from PC drives, so it's difficult to tell exactly what type of cable you need. Attaching the drive externally eliminates all those worries.

Warning: Be Gentle

It's now time to open up the laptop's case, but if you plan to have it repaired after getting the drive out, never forget to work delicately. Every component inside the case is fragile and critical. Never push so hard on a screwdriver that you risk slipping and scraping it on something. Never pull too hard on anything when trying to pry components apart.

Even if you plan to junk the laptop when finished, don't use brute force to get to the hard drive. There are sharp pieces that can cut you, chemicals that can leak out and cause damage to you or the environment, and other dangers lurking inside that innocuous-looking frame. Take your time, take it easy, and never forget that even if you do every-

Step 1: Look for an access bay. If you're lucky, the laptop's designers provided a plastic cover that pops off to expose the hard drive. Open all the bays on the bottom and sides of the laptop to see if you spot the hard drive. If so, skip to Step 4. If not, move to Step 2.

Step 2: Open the case. You must remove the numerous small screws that secure the laptop's bottom cover. It's unlikely that the bottom will lift off even after all that, so double-check for missed screws (they often lurk under the case's nonslip pads) and use your flathead screwdriver to carefully pry up the area. Sometimes, there's a small plastic clip you can manipulate to release the bottom of the case, and often there are hidden clips around the keyboard that must be released to move the keyboard and access a few screws from the top. Do a Web search for opening your particular laptop model to see if there is a tutorial available. Also, be very careful when separating the bottom of the case from the top, because there are likely several cables you'll need to disconnect from their interfaces.

If this worked, you should now have access to the hard drive, so proceed to Step 4. If not, read on.

Step 3: Dig deeper. Sometimes, the hard drive is buried under some other component that must be unscrewed and lifted out of the way to gain access. Be extremely careful when moving a component attached using a cable, as there may be no way to reinsert the cable later should it come unattached.

Step 4: Remove the drive. Once you see the hard drive, remove any screws attaching it to the case and carefully detach the cables connecting it to the computer. Take real care here not to bend any metal pins on the back of the drive.

Step 5: Connect the drive to a PC. Take the drive to an area where you
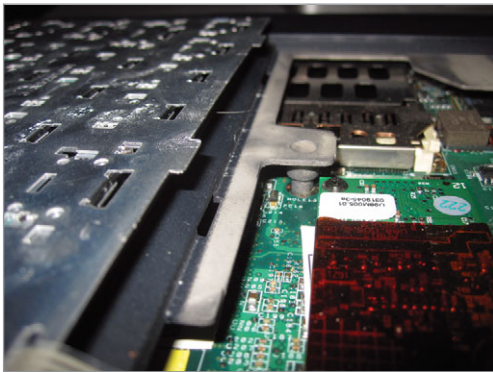
See the gray post with the screw hole on top? Remove screws from the posts to release the case.

The hard drive is a small, thin, rectangular block (here, it's covered in orange plastic).

recommend products that connect to the computer using a USB interface for maximum compatibility.

You can open the PC's case and connect the laptop hard drive to the PC's motherboard using a simple, inexpensive cable, but we don't recommend it. It increases the odds that you'll unseat a

thing perfectly, there may be no way to open the laptop without damaging it.

Step-By-Step Data Recovery

Before you begin, touch a grounded piece of metal to discharge any stored static electricity in your body.

can connect it to a desktop PC. Insert the drive in the external enclosure or attach it to the power and interface ends of the adapter cable and then plug in the external enclosure or adapter cable and turn on the drive.

Turn on the PC, wait for it to fully boot into Windows, and install any drivers if your enclosure or adapter cable came with a driver CD. If you install drivers, reboot the PC and wait for Windows to load again. Now, connect the drive to the appropriate port on the PC (likely USB), and give Windows some time to detect the new hardware.

Step 6: Recover data. Click Start, click My Computer (or Computer), and double-click the new icon that corresponds to the laptop hard drive to open it. You can now copy any files from that drive to the PC or back them up to recordable CDs, recordable DVDs, an external hard drive, or any other method using the same techniques you use to back up data on your PC.

Take care not to bend the metal pins on the end of the drive.
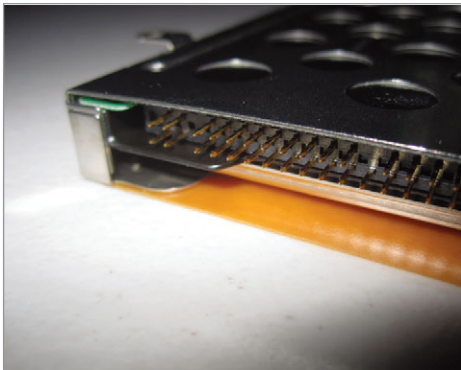
Hooking up a hard drive to a PC is easy using an adapter cable.

If the drive icon doesn't appear, disconnect the laptop drive from the PC (you can leave the drive powered on), reboot the PC, wait for Windows to load completely, and reattach the laptop drive to the PC. If that doesn't work, contact the external enclosure or adapter cable manufacturer for troubleshooting.

Step 7: Reassemble and repair. If you want to repair the laptop, go through these steps in reverse order to reinstall the drive in the laptop before taking it to the shop. If you plan to get rid of the laptop and the hard drive, be sure to securely delete the contents of the laptop's hard drive using a utility such as Eraser (eraser.heidi.ie), a free program that overwrites the data so nobody else can ever access it. ▌▌

BY TRACY BAKER

Protect Your Data With An SSD

If you ever need to replace your laptop's hard drive, or if you are buying a new laptop, an SSD (solid-state drive) is a sensible choice. Standard hard drives have many fragile moving parts and are highly susceptible to shock damage when dropped. SSDs have no moving parts and are much more resistant to shock damage, a huge plus for a mobile device. As a side benefit, SSDs often operate using less energy than a standard hard drive, extending the laptop's battery life. They also read and write data much faster than do standard hard drives, boosting performance considerably.

Currently, the only drawback to SSDs is price. They cost several times as much as a standard hard drive of comparable capacity, but prices continue to fall, and the extra durability, faster speed, and increased battery life are a trifecta for laptop owners. ▌

Back Up Your Data To The Cloud

You likely use your laptop to work on office documents, serve up slideshows, and perform other tasks that rely on files that really aren't that large. Backing up all this data is crucial, but the laptop isn't always in a place where doing so is convenient or even possible using standard backup hardware. For that reason and more, we recommend backing up laptop files using cloud storage.

The cloud is the Internet, or, more specifically, companies that attach storage servers to the Internet and let you back up to and retrieve files from those servers using an Internet connection. The benefits are enormous: You can back up or download from any location where you have an Internet connection. You can access the files from another computer if your laptop breaks, and sharing files with others is easy if you need to collaborate. Most cloud storage services also save your data on multiple servers in multiple locations for redundancy in case a server fails. In most cases, cloud storage companies encrypt your files automatically so that employees at the data center can never know the files' contents.

Cloud storage is affordable. Microsoft, for example, offers Windows Live SkyDrive (windowslive.com /online/skydrive), which comes with 25GB of cloud storage and doesn't cost a cent. If you want to back up everything, consider a service such as MozyHome (www.mozy.com) that lets you back up your entire drive to the cloud for $4.95 per month. ▌

Tough Enough
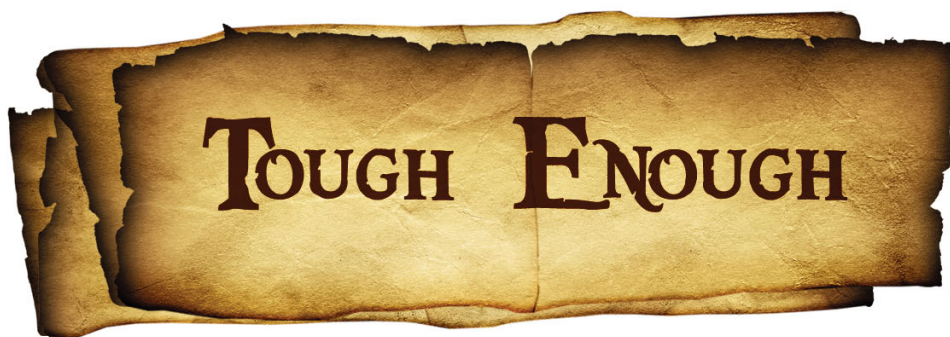
Ruggedized Devices Survive Life's Mishaps

There's more than one way to lose important data. A lapse in judgment, an erroneous mouse click, an imperceptible power fluctuation, even rare earth novelty magnets handed out at a trade show. . . . Hazards to your digital life abound.

One of the most common calamities in this age of mobile computing devices (and one of our personal favorites from a recreational perspective) is good old-fashioned physical impact. Crushing, smushing, dropping, whopping, falling, galling, bumping, thumping . . . we could go on, but you get the point. When your computer or storage device hits something or gets hit by something, things break, and you may not be able to pick up the pieces, recovery-wise.

Physical breakage is a major concern because it makes it immensely more expensive to recoup your data. Think about it: The recovery methods that a) you can try by yourself and b) are cheap or free all depend on your drive still working. Data recovery software won't get you very far if your hard drive won't spin up anymore.

We call a broken drive a more expensive problem—not an insoluble one—because you will still have the option of soliciting the help of a professional data recovery service. Said services, unfortunately, are an order of magnitude more costly than buying a data recovery app. Recovery services have the tools and expertise to repair damaged storage hardware, at least long enough to copy some or all of its contents to a fully functional counterpart. Unsurprisingly, this isn't cheap.

That's why it pays to consider buying a portable drive or device that features advanced protection against physical shock. Manufacturers advertise these gadgets as "ruggedized."

They're built to take more abuse than the norm—and often dust, hot or cold temperatures, humidity, and even immersion in water—without losing any of your data.

Bear in mind that a ruggedized device isn't intended to take the place of good backup practices for data protection, just as nothing can replace encryption for files you want to keep private. Still, extra physical robustness can't go amiss when it comes to mobile computing.

Laptops & Tablets

Industrial and military users need mobile technology just as much as anyone else. More to the point, they need mobile technology that can survive in harsh environments.

Getac's V100 ($3,199 to $4,829) is a ruggedized notebook with a twist: Its touchscreen can swivel around to turn the unit into a tablet. The V100 has a waterproof keyboard, a shock-mounted hard drive, and a display that's readable in sunlight.

Factory supervisors need tablet computers that can keep tabs on production resources despite the occasional bounce off a concrete floor. Tools and sparks pose dangers for sensitive screens, while strong electromagnetic fields can play havoc with traditional hard drives. Also, some environments are too hot and dirty for ordinary laptops, which have ventilation pathways that can become choked with grit and excess heat.

Soldiers need laptops to give them the vital flow of information that helps them maintain critical situational awareness. At the same time, those notebooks must meet a standard of resistance to extreme temperatures, moisture, sand, and dust, not to mention rough handling.

Auto mechanics, commercial fishermen, oil workers, and even park rangers are in the same boat. All have information input and retrieval needs, and all do their jobs in places that would make an average notebook tremble in fear.

Hence there has long been a market for ruggedized laptops. Industrial tablet devices evolved separately out of need, often using styli for user input. More recently, touchscreen computers built in the tablet form factor have replaced specialized tablet devices in certain industrial roles.

Manufacturers such as Getac (www.getac.com), Panasonic (www.panasonic.com), and General Dynamics Itronix (www.gd-itronix.com) fortify their ruggedized portable computers with a variety of impact-resistant materials such as silicone, plastics, and metals. They buttress corners and edges with structural reinforcements while sheathing them in shock-absorbing rubber. The all-important mass data storage device, whether an SSD (solid-state drive) or a hard drive, usually is cradled in a cushioned mount to cope with vibration as well as impacts.

Of course, rugged designs also protect the rest of the portable PC, such as the screen and keyboard. It's not only about safeguarding the data on the drive, in other words. Screens are made from materials that resist breakage and scratches. Vendors seal points of entry for liquids and airborne particles, such as keyboards and chassis seams. As for device ports, rubber plugs keep these tightly shut until the user needs them.

Because they're built to keep out moisture and dirt, and

therefore airflow, many ruggedized portable computers use processors and other components that don't generate much heat, even as compared with the low-power variants used in mainstream laptops. Such power-sipping silicon often isn't as agile as hotter chips geared toward more forgiving environments in home and business notebooks.

In other words, ruggedized portables may only run certain types of computing tasks as fast as a typical netbook or thin-and-light laptop. On the other hand, if the manufacturer wisely includes an SSD instead of a hard drive, a rugged model can seem very nimble and responsive during other types of uses.

External Hard Drives

Portable hard drives are physically smaller and thinner than desktop external drives, as they're based on notebook-sized, 2.5-inch drives instead of desktop-oriented, 3.5-inch units. They're generally tougher than their bigger counterparts, too.

Ruggedized external drives take toughness even further. Manufacturers such as CMS (www.cmsproducts.com) and SimpleTech (www.simpletech.com) use a variety of tricks similar to those of rugged notebook vendors to make their portable drives even more impact-resistant: stout metal shells, gel inserts, and more. In fact, some vendors such as Olixir (www.olixir.com) are confident enough in the shock and vibration dampening characteristics of their enclosures to make ruggedized storage units out of 3.5-inch drives as well as 2.5-inch ones.

Inside is typically a hard drive made with a special sensor that detects sudden acceleration, such as when

someone accidentally drops it or knocks it off a table. If the drive is running at the time, it will quickly and automatically park its heads—that is, move its read/write heads off the spinning disks and offload them onto special ramps—before impact on the ground. This avoids the possibility of a head crash. Also known as head slap, this literally means that the heads smack into the fragile magnetic data storage layer of the disks, erasing data and possibly causing the entire drive to fail. While parking the heads won't help if the physical shock is too much, such as if the drive falls off the cab of a truck headed down the parkway, it can definitely help the unit survive more common spills and mishaps.

SSDs

There are plenty of reasons to choose an SSD over a hard drive in a mobile device, provided you can handle the high price and low capacity. Peppier system responsiveness, low heat output, zero noise, and potentially extended battery life are a few.

More germane to this article is the fact that an SSD doesn't have any moving parts, unlike a hard drive. They're also quite tough from a physical standpoint. While a notebook hard drive might be as resilient as an SSD when powered down, it's far more fragile when you're actually using your computer. SSDs, in contrast, don't become more vulnerable when they're turned on.

The Rugged ABS Backup System ($299 for 80GB) is one resilient external hard drive. Built with CMS' DataGuard shock-absorbing sleeve, it can withstand temperatures from 203 degrees Fahrenheit to -40 F, the company says. Enterprise backup software and 256-bit AES (Advanced Encryption Standard) encryption protect your data from more than just physical threats.

Most SSDs sold today are bare 2.5-inch models that fit in laptops and desktop PCs alike. (In fact, installing one is the most practical way to make your existing, mainstream notebook more rugged.) However, a few external SSDs do exist in the product lines of manufacturers such as Transcend (www.transcendusa.com) and OCZ (www.ocztechnology.com).

USB Flash Drives

Like an SSD, a USB flash drive stores data in nonvolatile NAND (not AND) memory. Also called a thumb drive, this staple of personal, portable storage can be made rugged, as well. Crushproof metal shells, rubber casings, and even watertight caps are all hallmarks of the genre. Sources include Corsair (www.corsair.com), ADATA (www.adatausa.com), and Pretec (www.pretec.com).

Cases & Skins

A time-honored way to shield your run-of-the-mill cell phone, notebook, music player, or other mobile device is to put it in a protective case. A hard-sided laptop case from Pelican (pelican.com), for example, can guard your computer while in transit.

Alternatively, a tight-fitting silicone, leather, or plastic case can act as a suit of armor for your device even while you're using it. Tablets, smartphones, and media players can also benefit from stick-on overlays to protect their screens. Look to manufacturers such as Macally (www.macally.com) and OtterBox (www.otterbox.com) for a broad array of relevant products.

Costs & Benefits

Ruggedized USB flash drives generally don't cost much more than their mainstream cousins. On the other

G-Force

So-called "ruggedized" drives, notebooks, tablets, and other devices are designed to have a higher shock tolerance than regular models. That is to say, they can survive a greater amount of Gs (gravities), also known as units of G-force, without damage to themselves or the data they carry.

What's a G? It's a measurement of the acceleration or deceleration of an object over a period of time. Basically, 1G is the force exerted on you by the Earth's gravity while you're sitting there reading this article. Put another way, it's the force you feel against your seat belt when you come to a sudden stop (from 22 to 0 mph in one second) in a residential zone full of distracted squirrels.

When it's not running, a bare desktop (3.5-inch) hard drive may withstand a physical shock of approximately 350G (as measured over two milliseconds) without losing data. A running hard drive is much more vulnerable, say 35G, because its heads skim mere millionths of an inch above its fragile disks. Yet the same drive may endure up to 1,000G or more in a ruggedized enclosure when powered down, according to manufacturer claims.

Likewise, a nonoperating notebook (2.5-inch) drive might survive an impact of up to 1,000G bare but 10 times that amount of force in a rugged edition. Run an unprotected drive in a standard laptop, however, and it will only take a 225G impact to possibly nuke some of your data. That's another reason why an SSD, which has no moving parts, makes sense for mobile devices: It has the same high shock tolerance whether it's powered on or not. ∎

If you're serious about physical data protection, consider upgrading your notebook or portable hard drive to an SSD. Solid-state drives store data in flash memory chips. Compared to a hard drive's spinning disks and other moving parts, an SSD's components are much more resistant to bumps and bruises. This very speedy RealSSD C300 from Crucial (www.crucial.com) supports up to a 6Gbps (gigabits per second) SATA (Serial Advanced Technology Attachment) connection. It ranges from 128GB ($399.99) to 256GB ($749.99).

hand, a ruggedized external drive can cost several hundred dollars more than a standard model with similar specs. And the premium for rugged tablets and laptops can exceed a thousand bucks.

It's up to you whether your job or lifestyle justifies spending more—potentially much more—on a ruggedized mobile device. Of course, after a physical accident that miraculously spares your data, that price premium you paid might be worth every cent. ∎

BY MARTY SEMS

With the right case or skin, you can beef up your mobile device's physical toughness and its usability at the same time. Coming soon from OtterBox is the Defender Series Case for Apple's iPad ($89.95). Besides providing an extra layer of protection for your investment, the Defender will let you prop it up for ease of use.

Hard Drive Maintenance

Create Hard Drive Partitions

A **partition**, also called a volume, is a portion of a drive's storage capacity that's prepared to hold data. If you run Windows, your hard drive or SSD (solid-state drive) probably has a partition labeled C: on which the OS (operating system) resides.

Partitioning your drive—meaning to create additional drive letters in the space available—lets you keep your installed applications and your personal data files separate from the OS, even though they still exist on the same physical hard drive. Walling your data off from Windows makes it much more likely that it would survive an OS reinstallation. And if your OS version supports repair operations, you may not even have to reinstall your programs afterward.

Users of certain file systems may have to partition large hard drives to accommodate limitations such as FAT32's 32GB cap during Windows XP's installation routine.

Partitioning helps with a new issue, too. Many users want the snappy performance of an SSD, but they don't want to pay big bucks for a drive with 60GB or more capacity. Therefore, they install their OSes on relatively affordable 30GB or 32GB SSDs. Along with these boot drives, partitioned as C:, they install hard drives with another couple of partitions (say E: and F:, assuming D: is an optical drive) for their programs and personal files, respectively.

Finally, there are some technical issues we'll skirt because they're not as major as they used to be. Some partitions are the primary type, the only kind on which some OSes will install. Other partitions are called extended. An extended volume can have one or more virtual drives onboard. Virtual drives look and act like partitions, for the most part, and have their own drive letters. Therefore, to keep things simple, we'll generically refer to each hard drive or SSD storage section with its own drive letter as a partition. Thankfully, current partitioning software and OS installation routines generally guide you to the best type of partition and optimal settings for your situation.
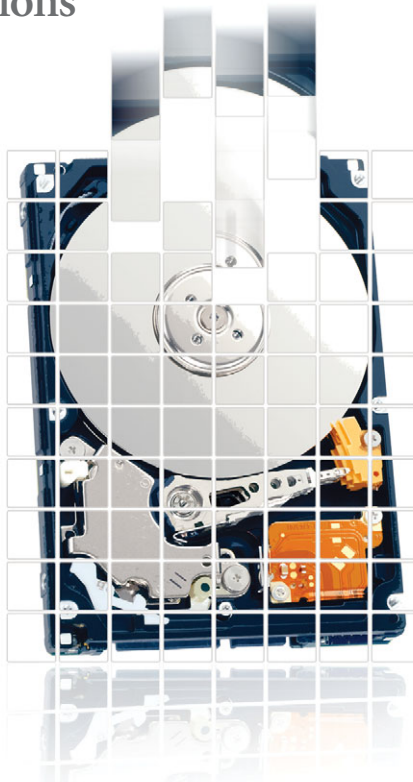
Windows 7 Disk Management

Windows 7 and Vista have good partitioning tools in comparison with WinXP and earlier editions. With these versions of Windows, you won't need third-party software to split your drive into two or more sections. That said, there are several excellent free and for-pay utilities that make partitioning in WinXP easy and relatively safe. Let's walk through the process in Win7 as an example.

First, you'll want to run Disk Cleanup. If you have a hard drive, defragment it. If you're a WinXP/Vista user with an SSD, run the manufacturer's "garbage collection" utility, if one is available. Temporarily turn off your antivirus software's automatic protection feature, too.

Next, click Start, Control Panel, System And Security, and Create And Format Hard Disk Partitions. In the bottom panel, Disk 0 refers to your hard drive. It should have a single C: partition covering its entire capacity, or at least most of it. (Many prebuilt computers have a second partition, such as D: or E:, for recovery purposes.)

Right-click the (C:) entry and select Properties. Note the Used Space figure, such as 19.6GB; that's the
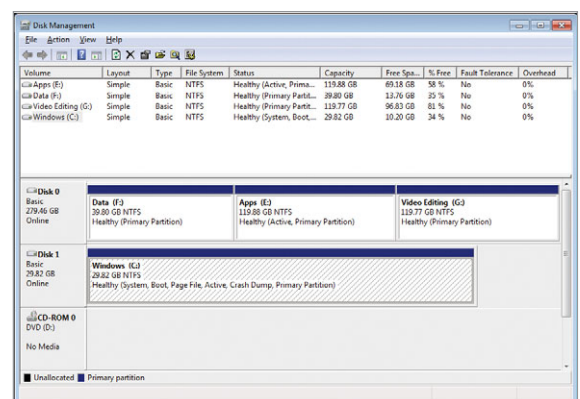
Windows 7's Disk Management lets you partition your hard drive or SSD without losing your data. Here, a PC with two drives has four partitions (C:, E:, F:, and G:).

amount of storage space your OS, applications, and data are using. This figure is important because you'll be shrinking the C: partition to make room for new ones, and you can't make a partition smaller than the data it contains. In fact, the minimum size you should make C: should be the Used Space amount plus a cushion of 10GB or so for future updates and the swap file (also called virtual memory). Click OK.

Next, right-click (C:) and choose Shrink Volume. When the Shrink C: window appears, change the number in the field marked Enter The Amount Of Space To Shrink In MB until the Total Size After Shrink In MB field displays the approximate size you want C: to be.

In our example, a 10GB cushion added to the 19.6GB of data on our C: partition gives us a target of 29,600MB (29.6GB) for the Total Size After Shrink In MB field. We subtracted that number from the amount in the Total Size Before Shrink In MB field, and then we typed the result in Enter The Amount Of Space To Shrink In MB. Finally, click Shrink.

Now you'll see a new Unallocated area on the latter part of your hard drive. This is where you'll make a couple of new partitions. (Win7 will automatically create primary partitions or an extended partition with one or more virtual drives as applicable.)

Right-click the Unallocated section and then click New Simple Volume and Next. The Simple Volume Size In MB field will display the entire available capacity left on the drive. Reduce this figure to a suitable amount for your applications, such as 10,000MB (10GB), and click Next.

Choose a drive letter—you won't be able to pick a letter already in use—and click Next again. Change the Volume Label to something to help you remember what the partition is for, such as Apps, and then click Next and Finish.

Finally, repeat the above steps to create another new simple volume on the remaining Unallocated region. Use all of the capacity available in the

Life Beyond The C: Drive

Now that your C: partition is smaller, you'll need to avoid filling it with software and personal files. To do this, you'll need to slightly change the default file path whenever you install an application, such as to E:\PROGRAM FILES (X86) instead of C:\ PROGRAM FILES (X86).

While you're at it, change the locations of temporary folders in applications that work with large file sets, such as video editing or DVD authoring software. Usually you can do this by launching the program and changing the temp folder paths in its settings. Likewise, you can no longer allow programs to automatically save files to your C: drive. When you save a file you're using, reroute it from the default C: drive to your data partition, such as F:.

To make file saves much simpler down the road, it's a good idea to remap the locations of the Documents, Music, Pictures, and Videos libraries to folders on your personal files partition. Many applications will, by default, save files and other data to these libraries instead of to a particular file path on C:. If you don't redirect these oft-used file destinations, you'll probably fill up your C: partition in no time.

To change library locations in Win7, right-click Start and select Open Windows Explorer. Next, right-click Documents and choose Properties. Click Include A Folder. Now browse to your data partition, click New Folder, and name it Documents or similar. Click Include Folder. Back in the Documents Properties window, highlight the new folder by clicking it once and then click Set Save Location, Apply, and OK. Now do the same procedure with Music, Pictures, and Videos. ∎
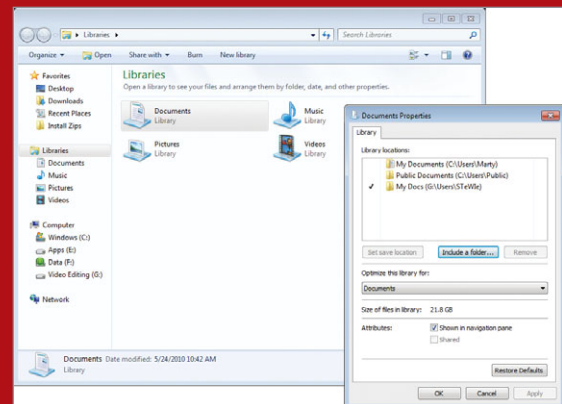
If you plan to keep your personal files on a partition other than C:, we strongly urge you to move your Documents, Pictures, and other library locations to that volume.
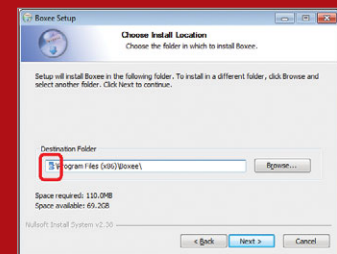
Make sure that you change the drive letter to your application's partition whenever you install a new program.

Simple Volume Size In MB field and rename the Volume Label "Personal Data" or something similar.

Before You Drive Off

Once you have partitioned your hard drive or solid-state drive, you are well on your way to more organized and safer data storage. To make the most of these new partitions, read up on our advice in the "Life Beyond The C: Drive" sidebar in this article. ∎

BY **Marty Sems**

Hard Drive Maintenance

Clean Up Your Drive

Just because your PC is being sluggish—or possibly even crashing—doesn't mean you have major hardware problems. An overloaded or poorly maintained hard drive can mimic signs of PC failure. Optimizing your drive is like organizing and cleaning out a closet. It makes it much easier for you (or in this case your PC) to find things efficiently. Two basic steps in this process are drive cleanup and drive defragmentation.

Drive cleanup scans your hard drive(s) for files you don't need, such as temporary files stored during browsing or program installation. Disk defragmentation rearranges your data so it occupies as much contiguous space as possible. Both operations improve performance—one by freeing hard drive space and the other by making it faster for the drive to access files.

Pick Your Weapon

Windows includes two utilities—Disk Cleanup and Disk Defragmenter—that perform these tasks. Although both have been tweaked through several versions of the OS (operating system), neither tackles drive maintenance in the optimal fashion offered by third-party tools.

We won't detail Windows' utilities, preferring instead to focus on a more powerful third-party option. However, if you want to try them, both are accessible from the Programs (or All Programs) option in the Start menu under Accessories and System Tools. Note that in Windows 7, Disk Defragmenter runs automatically by default (unless you disable it).

For this article, we selected PC Tools Disk Suite ($39.95; www.pctools.com).

With a program such as Disk Suite automated to your liking, you can relax. Your PC won't suffer from slowdowns or freezes due to something as easily preventable as a full or fragmented drive.

We like its flexible approach (you can create custom cleanup sets and schedules) and scope (includes backup and drive repair features, as well, although we won't cover them here).

Depending on your needs and OS, other tools might suit you as well, or better. For example, SecureClean ($39.95; www.whitecanyon.com) offers advanced file and history deletion but no defragmentation. Fix It Utilities 10 Professional ($49.95; www.fixitutilities.com) automates both drive and system maintenance and optimization.

Just Do It

Installing Disk Suite takes less than a minute, and the interface pops up immediately. From the main Status window, you select a tab for each process. The order in which to run these operations is a chicken-and-egg question. If your hard drive is very full, cleanup is faster if you defragment first. Defragmenting is speedier if you remove junk files beforehand.

During ongoing operation, Disk Suite lets you automate operations (click Schedule on the main display or an operation tab) and then adjust them as needed by clicking the Properties button on the Schedule tab. You select the time, day, frequency, and order in which options process.

Disk Suite lets you create custom sets of files or folders to clean or defragment. For example, you might want to defragment infrequently accessed drives less often, or exclude from cleanup the location where you archive files such as Internet pages and program files. You can also select from three different defragmentation options—Analyze only (see how fragmented drives are), Defrag (analyze and perform a quick defragmentation), or Consolidate Free Space (which helps reduce future fragmentation).

With a program such as Disk Suite automated to your liking, you can relax. Your PC won't suffer from slowdowns or freezes due to something as easily preventable as a full or fragmented drive. ▌▌
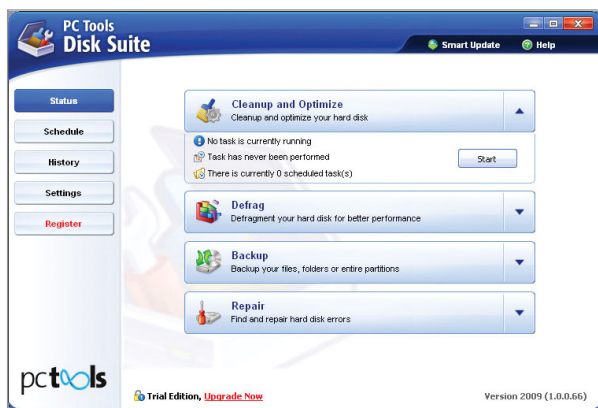
Disk Suite unites major drive maintenance functions, including defragmenting and cleanup, under a simple, centralized interface.
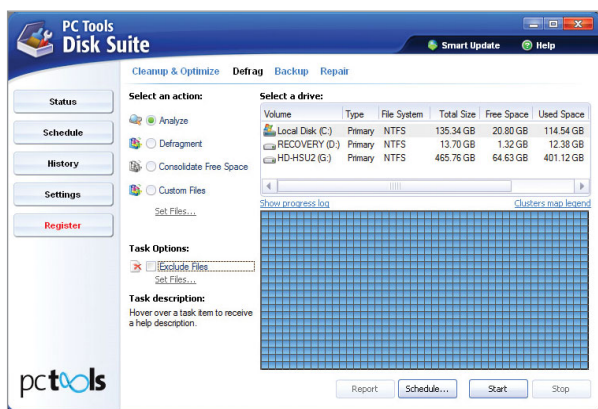
Disk Suite provides options for both a quick, less-thorough defragmentation (the Defragment option here) and an intensive analysis and defrag that frees as much space as possible (Consolidate Free Space).

<div align="right">

BY JENNIFER FARWELL

</div>

Hard Drive Maintenance

Troubleshoot Drive Problems

Whether you hear strange noises from your computer or your computer is crashing intermittently, you may suspect you have a damaged hard drive. "Average" hard drive life cycles are generally estimated at three to five years, and some drives last 10 years or more. Those figures aren't very comforting if your drive fails after six months and you don't have a data backup.

So why do hard drives fail, often more frequently than they should? How can we tell when they are experiencing trouble? The answers are pretty straightforward; knowing them can save you hours of PC misery. Note that this article does not cover solid-state (flash) drives now used in many portable devices.

Verify The Villain

Despite talk about data loss due to viruses and software glitches, hardware failure remains the most likely cause of data failure. According to data recovery firm Ontrack, hardware or system failure is the most common cause of data loss, at 56%. However, human error is next, at 26%, with software/program corruption (9%) way down the list. That's a one-in-four chance the file you cannot find is gone because

you saved over it, deleted it, or otherwise damaged it. If your hard drive is actually failing, you may have seen warning signs, and if not, there are ways to check the drive for problems.

Traditional HDDs (hard disk drives) are mechanical devices composed of stacked platters that spin very quickly (7,200rpm is common). Read/write heads, connected to a moving arm, hover above the platters separated by a cushion of air. These heads move like lightning across the surface, retrieving or storing bits of data (millions of tiny magnetized or demagnetized areas).

Hard drives can simply wear out—the motor that spins the platters can fail or behave erratically, for example. Also, hard drives in PCs that are jostled or dropped—especially while a read/write operation is going on—may be damaged if the heads make contact with the surface of the platters. Hard drives also have filtered air intakes, which can become clogged or allow particles into the drive mechanism. Both of these issues can damage the drive.

Signs Of Trouble

Warning signs are common with hard drives. One obvious sign of drive failure is noise. You may hear a repetitive noise—best described as a metallic crunching or thumping sound—as the arm thrashes about, trying to access data. Some (but not all) HDDs make an audible whirring noise—the sound of the spinning platters—when they are operating smoothly. If you can hear your drive (you may have to listen closely) and the whirring pitch rises and falls repeatedly, it means the drive is spinning up and down. This could indicate a problem with the drive's power
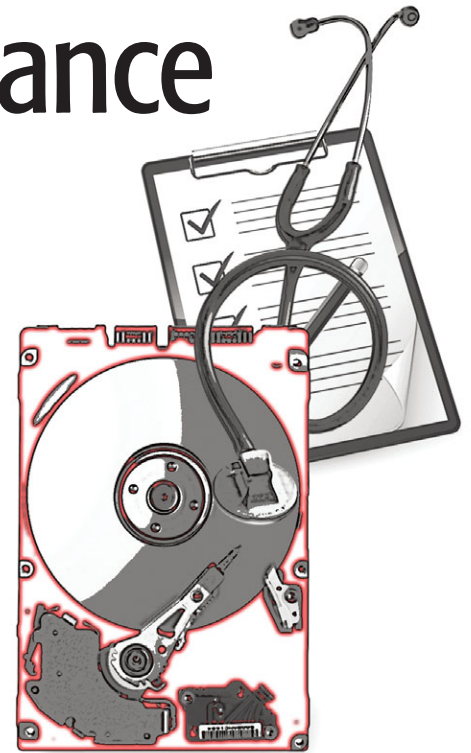
supply, but even so, it can mean trouble is close at hand.

If you are hearing any noises that sound drive-related, your best shot at saving the drive is to cease operation immediately. If you absolutely need a few critical files from the drive, get them off of it immediately and then get the drive to a repair shop. The longer you operate with unexpected noises, the greater the chances of total failure.

There are other, early hard drive trouble signs. You may notice files are missing, damaged, or take a long time to open. Your computer may freeze frequently as the drive struggles to access the data. Alternately, your PC may freeze during bootup, or you may see the classic Blue Screen Of Death.

All of these issues can also occur with other problems, such as OS (operating system) or software corruption. A corrupted MBR (master boot record)—a tiny file on your hard drive that indexes the data—can cause some of these problems. The MBR can be damaged by a bad sector (spot) on
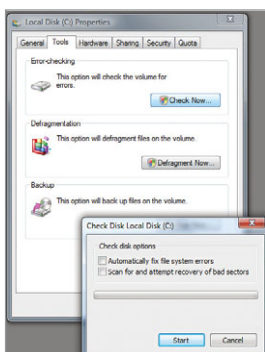
Windows' Check Disk can analyze your hard drive and perform some repairs.

your hard drive, but a virus or other malware can also be at fault. Fortunately, there are ways to test for (and possibly eliminate) drive failure.

If your system will not boot at all, or if you start the PC and see a pre-Windows-boot error message that reads Operating System Not Found, Missing Operating System, Setup Did Not Find Any Hard Disk Drives Installed On Your Computer, or similar, your HDD may or may not have failed completely. (See the "Doctor, Doctor!" sidebar for further assistance.)

Operating Room

If you can boot into Windows and your hard drive isn't crying for help (literally), a drive-checking utility can assist. Windows comes with a built-in disk utility (Check Disk). It's good for doing an initial (free) scan on your drive. To use Check Disk, select Computer or My Computer from the Start menu. Right-click your drive and
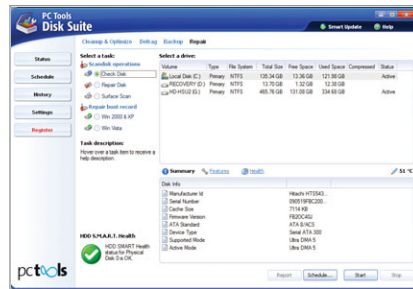
A hard drive utility such as Disk Suite can monitor your drive's health and repair it if necessary.

select Properties. Click the Tools tab and select Check Now. You can opt to analyze only or to fix errors and recover bad sectors. If the hard drive is busy, Windows may prompt you to schedule the task for later.

Advanced, third-party drive utilities can monitor your drive closely and are often more thorough in handling repairs than Check Disk. Three such tools are PC Tools Disk Suite ($39.95; www.pctools.com), Fix-It Utilities

($49.95; www.fixitutilities.com), and Hard Disk Sentinel ($23; www.hdsentinel.com). Your HDD manufacturer may provide a free tool, as well.

Ounce Of Prevention

As with so many PC components, taking care of your hard drive—defragmenting it regularly and running drive utilities and not allowing it to become jostled, too hot or cold, or otherwise abused—will help squeeze the most life from your hard drive. Defragmentation is especially useful in terms of mechanical wear, as an arm that has to move excessively to locate millions of disparate fragments will likely wear out sooner.

Of course, a heavily used drive will also expire faster than one that is rarely accessed. If you purchase a new drive, it is worth spending more for a heavy-duty drive if you perform an excessive number of reads and writes. ▮

BY JENNIFER FARWELL

Doctor, Doctor!

When you cannot get to the OS level, other checks can help determine if a hard drive is the problem. First, see whether your BIOS (Basic Input/Output System, a program that manages low-level PC operations such as the boot process) can see the drive. When you boot your PC, you should see a message to press a key (possibly ESC, F1, F2, or DELETE) to enter Setup.

Press this key quickly at startup and your BIOS utility will open. You may see a listing that includes detected drives, or you may have to switch to a different display. (If needed, note the BIOS version and manufacturer and check the Internet for assistance.) If your BIOS recognizes the drive, it's a positive—although not foolproof—sign of life.

If you have a bootable rescue disc from your antivirus program, reboot and run a scan on the drive. It will scan the drive, including the boot partition, for viruses. If it finds anything, follow any instructions you are given. If the virus checker can scan the drive but not successfully, or if it cannot scan the drive or your BIOS will not start, it is probably safest to seek professional assistance.

If the BIOS doesn't recognize your drive, the internal cables may have come loose. If you recently moved or jostled your PC or were inside the case doing upgrades, you (or a PC technician if you are not comfortable) should check

the drive cables for a tight connection (and potentially check the hard drive, as well). For instructions about opening your case to check the drive and replacing the drive, if necessary, see "Hard Drive Maintenance: Replace Your Hard Drive" on page 80.

If you do not see a BIOS message prior to OS start, consult your users manual. The manufacturer may have overridden this feature. If nothing happens when you boot the PC, something else (power supply, motherboard, etc.) is likely the problem. These issues are beyond the scope of this article. ▮
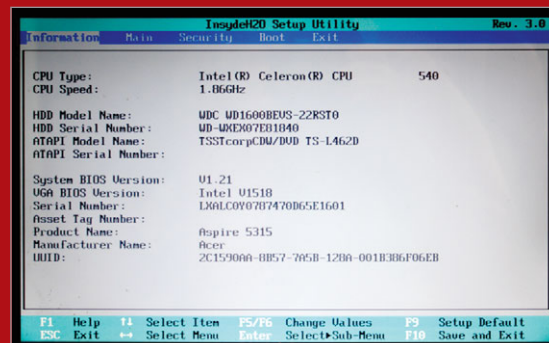
Your BIOS can tell you if it recognizes the drive's existence.

Hard Drive Maintenance

Replace Your PC's Hard Drive

As central as your hard drive is to the functionality of your computer, you'd think replacing it would be a long, tedious, complicated process; in reality, it's a pretty easy fix.

There are multiple reasons why you might want to replace your hard drive. In some cases, you may just be ready to upgrade to a faster drive with more capacity, while in others, your current hard drive might be failing and you have to replace it out of necessity.

Regardless of your reasons, make sure you back up the old hard drive before doing anything else. You should already be doing so on a regular basis, but having a copy of all your files and folders will be hugely important when you're ready to get back to it with the new hard drive.

What To Look For In A Hard Drive

When you're shopping for a new hard drive, there are two primary features to consider: storage capacity and speed. Unless you have specific needs for an especially large or especially high-speed hard drive, look for a balance between the two, which will give you plenty of both without breaking the bank.

These days, the price per gigabyte of hard drive storage has plummeted to the point where you can nab a 1TB (terabyte) hard drive—that's 1,000GB, mind you—for well under $100. However, how much you pay for a certain amount of storage is affected by other factors, most notably speed. Therefore, if you have a certain dollar amount you're trying to stay under, don't be tempted to splurge on that 2TB drive if 500GB is more than enough for you. Make sure your bucks buy you performance, too.

Presently, a hard drive that spins at 7,200rpm seems to be the sweet spot for capacity and performance at a generally low price. If you want exceptionally high capacity and want to keep your costs low, though, consider a 5,400rpm drive. Conversely, if it's speed you're after, a 10,000rpm drive will deliver high performance, but you'll have to pay more (for the same capacity) in a 10,000rpm drive than you would in a 7,200rpm drive.

SSDs (solid-state drives) are another option if you're angling for a performance boost. Most SSDs are smaller than regular 3.5-inch desktop hard drives, so you may need a special adapter kit to mount one in your case (although many cases now have 2.5-inch bays designed for SSDs). SSDs are also considerably more expensive per gigabyte than regular hard drives, but they generally offer exceptional performance. Because they use flash technology to store data instead of the spinning platters in regular hard drives, they're less prone to damage from wear and tear, too.

You may have additional criteria when shopping for a hard drive, such as noise reduction or energy efficiency. There are plenty of hard drives available that are optimized to reduce noise or cut down on wasted energy; in some

SSDs (solid-state drives) are smaller than typical 3.5-inch hard drives and generally offer a performance boost, but they're also more expensive per gigabyte.

There are multiple ways a hard drive may be mounted inside a computer case, from tool-less designs to rails and special mounts.

cases, those features go hand in hand and are available on the same drive.

How To Install A Hard Drive

When removing the old hard drive and installing the new one, first power off your computer and then switch off and unplug the power supply. Remove the side panel so you can access the computer's innards. It's a good idea to wear an antistatic wrist strap before you touch anything inside the computer to prevent damage to the components, but at the very least, touch a metal part of the case to discharge any static electricity before you begin.

With the side panel off, locate the hard drive and disconnect the power and SATA (Serial Advanced Technology Attachment) cables from the drive. (If your hard drive is older, it's possible that you have an IDE [Integrated Drive Electronics] cable instead of SATA. If this is the case, you will most likely need to locate a SATA cable for the new drive. If the drive did not come with one, you can find one online or at your local electronics retail store.) The power cable will be either a large 4-pin Molex connector or a thin, L-shaped SATA power connector. Your new hard drive likely has ports for both types or includes an adapter. You can use either one of the power cables—but use *only* one of them, not both.

There are a few different ways to mount a standard 3.5-inch hard drive in a computer case drive bay. Some cases have tool-less designs that let you simply slide the drive into a slot and click it into place. Others require you to use screws to attach rails (which are included with the case) to the hard drive before you put it in the drive bay and then use some additional screws to keep the drive securely in place. There are other styles in between, too.

However your particular computer does it, remove the old hard drive and pop in the new one. When the drive is securely mounted in the case, attach the appropriate power cable and data cable.

How To Install Windows

The most time-consuming part of replacing a hard drive, actually, is installing

For power, your hard drive can use either a large, 4-pin Molex connector (right) or the thin and L-shaped SATA power connector (left).

Windows on the new drive. It's not a difficult process, but it takes time and requires a Windows installation disc. For our purposes, let's assume you're installing Windows 7.

Turn on the computer and, when prompted, insert the Win7 installation disc and press ENTER. Wait for Windows to load the files, and when the Install Windows box finally appears, click Next. Click Install Now on the next screen, and after a while, another window will appear; checkmark the I Accept The License Terms box and click Next.

Click Custom (Advanced) to do a clean Windows installation, and on the next screen, be sure that the drive or partition on which you want to install Windows is selected. Then, click Next.

Windows will work for a while and will restart at least once. After a good long while (seriously, you could go and have a quick lunch before Windows completes this process), the Set Up Windows screen will appear and prompt you to enter a username and a name for your PC. Enter that information and click Next. On the next screen, you'll be asked to enter a password. It's not mandatory that you create one, although it will definitely help keep unauthorized people from using your computer. When you've made your decision, click Next (or create a password and click Next). Enter your product key and click Next.

Under Help Protect Your Computer And Improve Windows Automatically, choose one of the three options (your choice, although Use Recommended Settings is always a safe bet). Set the date and time on the next screen and click Next. After a little while, Windows will finish booting, and you're all set.

Now would be the time to retrieve that external hard drive or log in to your online storage service and drag all of your old files and folders to your new hard drive. **II**
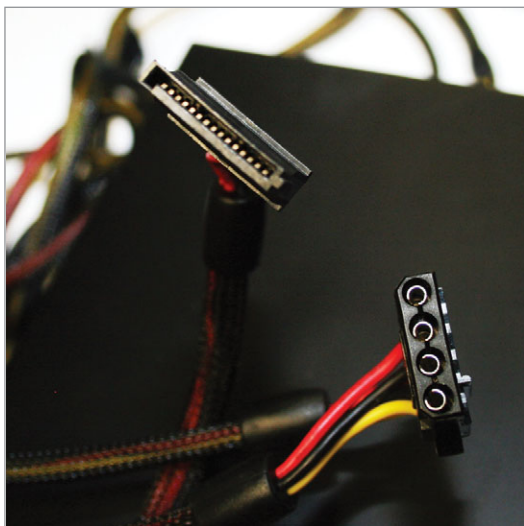
BY SETH COLANER

Memory Maintenance

Troubleshoot RAM Problems

System memory, or RAM, is just as important as the CPU or motherboard to a PC's operation. Because of their simplicity, RAM modules are very dependable, but problems do happen. Here are a few ways to target potential memory issues.

You Can't Handle The Power

The DRAM (dynamic RAM) chips on memory modules are very sensitive to electrostatic discharge. A static shock so slight you can't feel it can act like an explosion within the memory's microscopic cells. We always recommend paying a few bucks for an antistatic wrist or shoe strap and properly grounding yourself *before* touching PC components. Note that power surges from the wall can have the same effect, which is why it's important to use a high-quality surge protector, preferably one with automatic voltage regulation.

Hardware Telltales

Sometimes you get lucky and the motherboard will tell you your memory is bad. This often happens early in the bootup process while the system is running its POST (power on self test). If the POST detects a bad memory module, the motherboard may emit a single, continuous (and highly annoying) beep. Modern BIOSes (Basic Input/Output Systems) made by AMI (www.ami.com) will issue one or three short beeps, depending on what memory function is faulty. AMI's advice
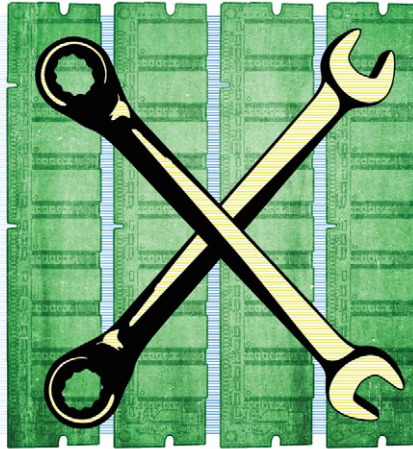
in this case is to "reseat the memory, or replace with known good modules."

Be particularly on the lookout for unseated memory if you've just finished an upgrade or otherwise moved the system around. You can tell that memory is unseated because the row of gold leads along the bottom edge will be partially visible, and it's likely that one of the two locks at each end of the memory slot won't be fully gripping the RAM module. Just to be safe, you can remove the modules and blow out their slots with compressed air to remove any stray dust or dirt that might be blocking contact points.

Another way that some motherboards let you know about bad memory is with an LED (light-emitting diode) readout. This feature is sometimes found on higher-end motherboards. If there's a memory problem, the LED will display a code (explained in the manual) pointing to the memory as a source.

Surviving The Crash

Your next most likely set of clues may come from Windows. A common symptom is getting the Blue Screen of Death either during Windows installation or while running Windows. Also, crashes during memory-intensive operations, such as 3D gaming or media editing, can signal bad memory (or other problems, especially overheating). Obviously, if you get an error message in Windows citing a memory problem at a certain address, that's a big clue.

Assuming you consulted the manual and have your modules in the correct slots given your configuration, reseating the memory and/or swapping it out for known good modules is almost always the key to fixing hardware-based memory issues. Still, if you need more confirmation that memory is your culprit, start with Windows Memory Diagnostic (tinyurl.com/qoy4; Windows Vista/7 users can find it by searching for "memory" in the Start Search field) or Memtest86+ (www.memtest.org). ▌▌

BY WILLIAM VAN WINKLE

Many memory problems can result from a module becoming partially unseated, especially after the system has been moved or suddenly jarred.
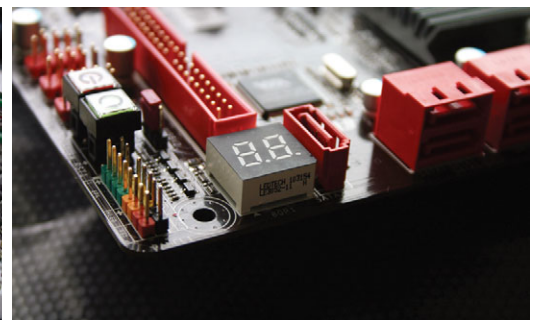
Some motherboards provide LEDs that display activity codes. If the system locks while the readout shows a memory-related operation in progress, you can suspect faulty RAM.

Memory Maintenance

Replace Your RAM
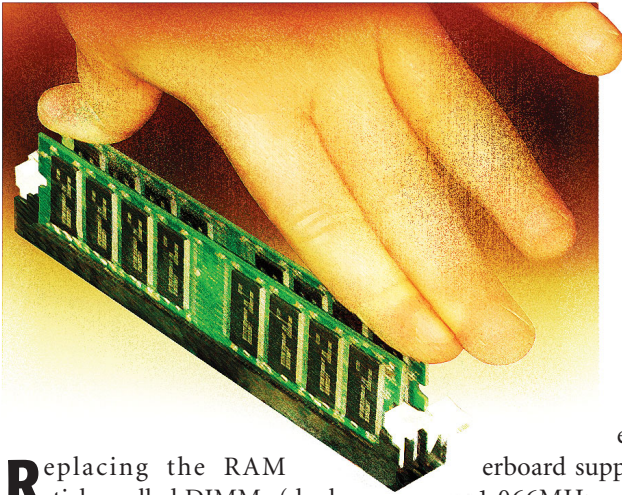
Replacing the RAM sticks, called DIMMs (dual in-line memory modules) or memory modules, is just about the easiest repair or upgrade you can make to your computer. It takes almost no time at all; even better, replacing the RAM is one of the best ways to give your computer a performance boost.

More good news concerning your RAM replacement project: Memory is increasingly inexpensive, which means that you can get yourself a major upgrade for very little cash.

What To Look For

What type of RAM and how much you can get depends entirely on your motherboard. The motherboard has slots for memory modules, but certain boards only support certain types of RAM.

For example, if your motherboard supports DDR2 (double-data-rate 2) memory, you can't use DDR3 memory modules with it. Different types of RAM are keyed differently, so DDR2 memory won't physically fit into a

DDR3 memory slot, and vice versa. Check your motherboard manual or locate information about it at the manufacturer's Web site to determine which type of memory your motherboard supports.

While you're at it, check what memory speeds your motherboard supports. For example, if your motherboard supports DDR3 RAM up to 1,066MHz, make sure any replacement memory is rated at 1,066MHz or lower; otherwise, you may experience performance problems.

Another factor in deciding what memory to buy is how much you should get. Although DIMMs come in more or less uniform sizes, their capacities range widely. An older computer may have just 512MB of RAM, whereas one just a few years newer may be outfitted with 4GB of RAM or more. (More memory will generally

Crucial's Web site (www.crucial.com) has a memory advisor tool and a system scanner tool that you can use to determine what memory your computer needs.

cost more.) Microsoft recommends 1GB for 32-bit versions of Windows 7 and 2GB for 64-bit versions, but bear in mind that these are low-end recommendations, so consider at least doubling those numbers to get a high-performing machine.

Don't go overboard on the RAM, though; although it may be tempting to cram as much memory as possible into a computer, there is a point of diminishing returns. In 32-bit versions of Windows, the computer won't be able to use more than 4GB of memory; any additional memory would be wasted. (In fact, Windows will use a little less than the full 4GB.) 64-bit versions of Windows are a different story, as they can make use of much more memory.

Even so, most common computing tasks don't need anything more than 4GB of memory to run before you'd find a performance bottleneck somewhere else in the system, so unless you're using particularly memory-intensive applications, you'll be fine with around 2GB or 4GB of RAM.

Determine What You Need

If you want to figure out exactly what type of RAM and how much of it you have running on your machine at present, there are two good ways to do so.

One is a program called PC Wizard, which is available as a free download from www.cpuid.com. Once you download PC Wizard, installing it is a simple matter of clicking through a few setup wizard screens.

When you launch PC Wizard, click the Mainboard icon under Hardware (on the left side of the screen) and then click Physical Memory. In the pane below the Mainboard area, you can view all the details about your installed memory that you can imagine, including the type, speed, and capacity. Make a note of all pertinent information so you have an idea of what you need when you go shopping for replacement RAM.

Tech Support

Several memory manufacturers have tools on their Web sites to help you discover what memory you currently have and what you need. For example, Crucial (www.crucial.com), Kingston Technology (www.kingston.com), and Corsair (www.corsair.com) all have such tools available.

If you want to search according to your computer model, memory type, or other similar criteria on Kingston's Web site, you can just click through a few drop-down menus and lists to find what you need. The search will provide results for you concerning the various memory upgrades available. Corsair's Web site tool is set up to let you search by selecting a type of system first (such as Desktops or Laptops) before selecting the manufacturer and model.

Typical results include data on the maximum amount of memory your computer supports and pertinent notes about the system.

Crucial's Web site search tool is similar to the other two, but it also has a Scan My System application; this is handy because it scans your current system to see what's in your computer already. Click Scan My System on the home page, agree to the terms and conditions, and click Download The Scanner. When you run the installation, the application will scan your system and display the results in a Web browser.

A third method of figuring out what you already have installed is to open up the computer and have a look at the memory itself—usually, some of the necessary info is printed on the DIMMs.

Memory modules, called DIMMs, come in a variety of types, speeds, and capacities.
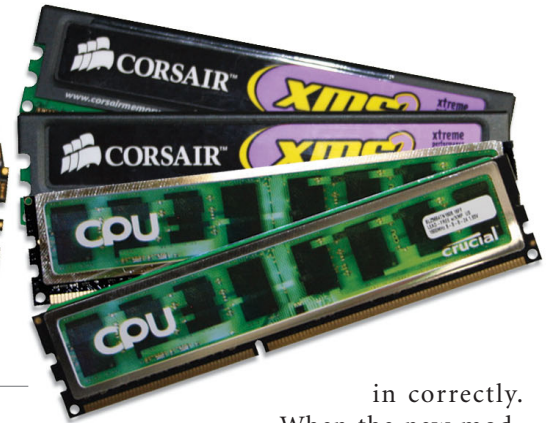
How To Install

Just as you should do any time you open up a computer to work on it, power off the machine and unplug it from the power source. Remove the case's side panel and touch a metal part of the case to discharge any static electricity before you get to work. (Wearing an antistatic wrist strap is a wise move, too.)

Locate the memory slots on your motherboard. Note that there are tabs at either end of each slot; these hold the DIMMs in place. To remove the old memory modules, pop open the tabs and gently but firmly pull out the DIMMs.

Assuming you're replacing the memory module-for-module, simply insert the new DIMMs into the slots previously occupied by the old ones. Remember, the modules are keyed to only fit a certain way into the slots, so if they won't slide into place, double-check to be sure you're putting them

in correctly. When the new modules are seated snugly, click the tabs into place to secure the memory.

Note that if you're not just replacing your old modules but also adding more DIMMs—for example, if you're replacing two DIMMs with four—pay attention to which slots the old memory was in. (Most newer motherboards come with four memory slots.) Memory modules come in matched pairs, and each pair should go in the appropriate slots. In this case, you have two pairs of modules; therefore, you can put one pair in the same slots as the old pair and put the additional DIMMs in the two remaining slots.

Close the computer case, reconnect your computer's power cord, switch on the power supply, and boot the computer. If you seated the RAM properly, the computer will boot right up—no need to install any software.

To be certain that the computer recognizes the memory you just replaced, click Start, right-click Computer (or My Computer), click Properties, and note the installed RAM. If the number listed is less than what you installed, one of the DIMMs is likely not seated properly and you should shut down the computer, reseat the module, and check again.

Finally, enjoy the newfound speed of your computer, provided by the new memory you installed. ▐▌

BY SETH COLANER

When you remove the old memory, take note of which slots they were installed in so you can put the new DIMMs in the same spots.
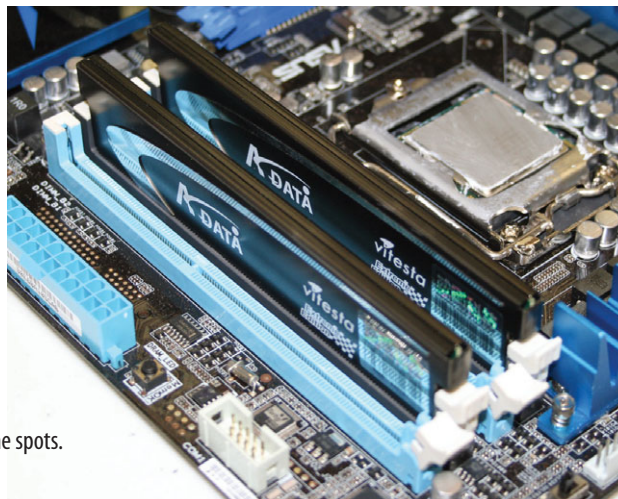
Video Card Maintenance

Fine-Tune Your Video Settings

In some ways, your computing experience is determined by what you see on your monitor. A poor display makes text harder to read and graphical details harder to make out. Half of the battle is picking a good monitor, but this article is about the battle's other half: getting your display card's software optimized so that whatever monitor you have can look its best.

Starting Out

Display configuration begins with knowing which GPU (graphics processing unit) you own. If you have a video card (also known as a graphics card), odds are very high that the GPU is made either by AMD (formerly ATI; ati.amd.com) or Nvidia (www.nvidia .com). If you have a notebook or a desktop PC with graphics built into the motherboard, commonly known as integrated graphics, you're probably dealing with a GPU made by AMD, Nvidia, or Intel (www.intel.com). Regardless of whether your system or card shipped with a drivers disc, the only way to have current drivers is to download them from the AMD, Nvidia, or Intel support Web sites.

Let's say you just brought home and installed a new video card based on AMD's ATI Radeon HD 5750 graphics processor. You would start at ati .amd.com. In the upper-right corner of the page, use the four drop-down menus to select what you need, such as Desktop Graphics, Radeon HD Series, Radeon HD 5xxx Series PCIe, and Windows 7 - 64 Bit, and click the View Results button. (Note that most add-on graphics cards are now based on the PCI-E [Peripheral Component Interconnect Express] slot format. Older cards could be AGP [Accelerated Graphics Port] or PCI, so double-check that you pick the right type.)

Unless you have a reason not to, download the entire Catalyst (AMD's brand name for its graphics drivers) software suite and run it. Windows may prompt you with the usual account control pop-ups. Just approve everything and either specify a target installation folder or accept the default AMD suggests. Click the Install button, Next, and Install (again).

When choosing between Express or Custom installation, we always pick Custom to deselect unwanted items, such as game offers and opt-in marketing emails. Click Next and accept the license agreement, and installation will complete after a few moments.

Resolution & Text

Graphics drivers usually auto-detect and self-configure to match your monitor's native resolution. Every LCD monitor has a native resolution at which it was designed to operate. You can manually set the graphics driver to output in a different resolution, but the end results may suffer. For example, some users might find that on-screen text looks too small for comfortable reading when displayed at a native resolution of 1,280 x 1,024. There are two easy ways to change this.

The first is through the Catalyst Control Center. You'll find this via the ATI icon located in your Windows System Tray. Right-click the ATI icon and select Catalyst Control Center. The CCC has a Basic and an Advanced view. We actually find the latter the easiest to use. In the top-left corner of the Advanced interface, use the drop-down menu to select Desktop Properties. Within that page, the Settings area offers a list of all possible resolutions for your monitor. Pick one and click Apply.

Alternatively, you can use Windows tools. In Windows 7, type **Change Display Settings** in the Start Search area and press ENTER. This leads to the Screen Resolution page, on which there's a drop-down menu for Resolution. Find the resolution settings in Vista by clicking Start, Control Panel, Appearance And Personalization, Personalize, and Display Settings. In WinXP, click Start, double-click Display (in Classic View), and click the Settings tab.

Also, be aware that changing an LCD from its native resolution will typically yield a bit of blurring or other odd artifacts. If you use Win7, consider using the Display page (search for Display from the Start menu) to adjust the size of on-screen items from Smaller to either Medium or Larger. In Vista, click Adjust Font Size (DPI) on the left pane of the Personalization window. In WinXP, click the Advanced button on the Settings tab in the Display Properties box and choose an option from the drop-down menu. This is a better approach for readability than changing resolution.

Also, in Win7, click the Adjust ClearType Text link on the Display page's left bar and confirm that Turn

On ClearType is checked and enabled. The wizard will then lead you through a series of screens in which you'll indicate which screens look best to you. Windows will use your selections to fine-tune ClearType and how your text will be displayed on-screen. To start ClearType in Vista, choose Window Color And Appearance from the Personalization window. Click Open Classic Appearance Properties For More Color

window, use the Standard tab if you don't want to mess with fine-tuning individual 3D settings and skew the slider toward Performance or Quality. Remember that the more post-processing you do for a finer image, the more graphics horsepower gets diverted away from speed. This can be a key consideration on older systems.

For more control, start with the AA (anti-aliasing) tab. This determines

Under the Mipmap tab, sliding to High Quality will help enhance detail sharpness and contrast in textures.

Enhance Video

Last but not least, you can adjust image quality during video playback. Most video players today do a decent job at managing quality; many people use the default setting, such as Use
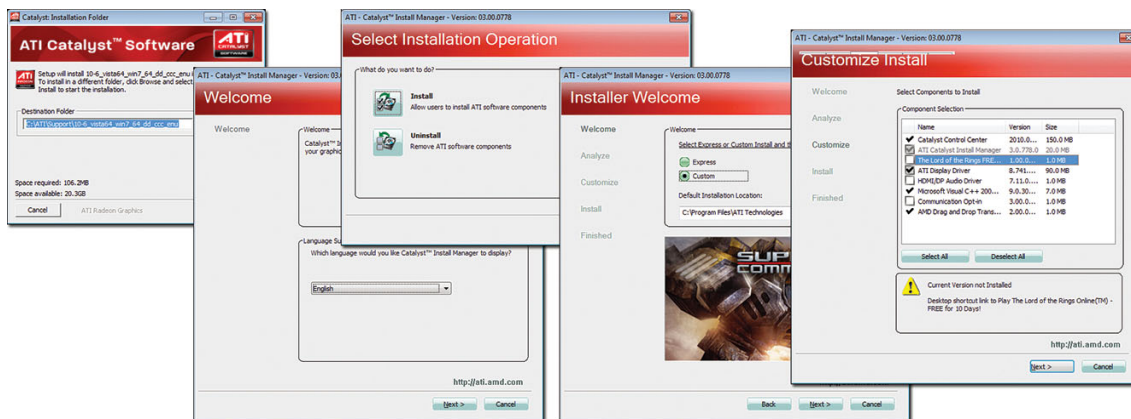
AMD's driver suite installation is very straightforward, especially if you pick the Express option. We prefer the Custom path for keeping systems cleaner.

Options. Click Effects and choose ClearType from the drop-down menu. In WinXP, click the Appearance tab in the Display Properties window, click the Effects button, choose ClearType from the second drop-down menu, and click OK. The changes are subtle but can make a noticeable improvement.

3D Improvements

The heart of a modern graphics adapter is its 3D capabilities and how well it can display different aspects of a 3D scene. (We use "3D" here to indicate scenes with depth perspective, not the new three-dimensional method of "Avatar" or Nvidia's 3D Vision technology.) In general, Intel's drivers are geared more for business use than entertainment, so Intel's drivers have fewer tweakable 3D settings. AMD and Nvidia generally tread the same ground, especially when it comes to users who might spend $100 rather than $400 on graphics.

In the CCC's top-left drop-down menu, pick 3D. Just above the preview

how much smoothing gets applied to jagged lines and edges. Here, as in most cases, you'll probably want to check the Use Application Settings box because many apps don't need AA cranked up. But if jaggies drive you nuts, crank it. Ditto that for AAA (adaptive anti-aliasing), which improves the look of transparent textures. In AMD's split-screen demo, look at the details in the wrought iron railing.

AF (anisotropic filtering) improves the look of textures and shapes as they recede into the distance. If you look at the floor tiling, you'll notice that without AF, the dark squares in the middle of each tile vanish in the distance. With AF, the dark squares stay clear for a much greater distance.

AMD and Nvidia both take many small shortcuts with their display technologies to optimize speed when very minimal quality is sacrificed. This helps their GPUs perform better on benchmark tests but may not yield top quality. To restore this quality in AMD GPUs, enable Catalyst A.I. and move the slider to the Advanced position.

The Video Player Setting in Nvidia's drivers. However, all monitors look different, and yours might need some extra adjusting. In Nvidia's Control Panel, for instance, use the Adjust Video Color Settings page to make scenes look more realistic. The Color tab gives control over brightness, contrast, hue, and saturation. Gamma lets you apply more or less red, green, or blue to the video. Under Advanced, set the Dynamic range to Full (0-255) in order to get the truest blacks and whites. Also enable dynamic contrast enhancement and color enhancement for maximum scene quality. Use the Adjust Video Image Settings page to increase edge enhancement and noise reduction. (Noise reduction can soften details, so use this with the edge enhancement.)

No matter which GPU you use, explore the driver options, experiment with them while looking at several content types, and discover which tweaks look best to your eyes. ▌▌

BY WILLIAM VAN WINKLE

Windows Maintenance

Removing useless startup programs frees system resources and improves boot times.

Time For A Tune-up

Over time, Windows accumulates so much clutter that cleaning it up quickly evolves from minor inconvenience to major chore. In this article, we'll show you how to use one of our favorite utilities—CCleaner (free; www.piriform.com)—to tidy up Windows on your home or small office PC.

CCleaner maintains a database of files that are safe to delete and lets you get rid of them with just a few clicks. It is safer to use than a lot of cleanup software we've tested, but you must set it up properly to ensure you don't lose anything you'd rather keep.

Install & Configure

Download a copy of the software, and install it, making sure to remove the check from the Add CCleaner Yahoo! Toolbar And Use CCleaner From Your Browser checkbox on the fourth screen of the installation wizard if you aren't interested in that. Launch the software and click the Options tab on the left. Click the Settings box and use the checkboxes to select or deselect any of the self-explanatory options there. In the Secure Deletion section, choose the Secure File Deletion radio button if you want to make sure that the things CCleaner deletes are not recoverable. This dramatically slows down the cleaning process, so only use it if privacy is a priority.

The Cookies section lets you decide if CCleaner should keep any cookies when cleaning. **Cookies** are files Web sites use to track your browsing habits, but they also store passwords and do other useful things. When you delete all your cookies, you'll also delete all your stored passwords and login information for sites you frequent, so consider moving those sites' cookies to the Cookies To Keep section or not removing cookies at all.

Don't worry about the Include or Exclude settings, as they're for advanced users.

Start Cleaning

Click the Cleaner tab. On the Windows tab, select the Internet Explorer files you wish to delete. Be aware that if you delete the Cookies and Autocomplete Form History, you'll need to retype all saved login info, passwords, and online forms, so you may want to leave those unchecked. Only check items in the Windows Explorer section if you want to get rid of them for privacy reasons. We recommend checking everything in the System section except DNS Cache. (This speeds up Web browsing.) In the Advanced section, the only option worth checking for privacy reasons is Wipe Free Space, which overwrites all empty areas of the drive with random data. This takes a long time, so only enable it every so often.

On the Applications tab, select options for your other Web browsers as you did for Internet Explorer. The other options are safe to leave selected.

CCleaner makes it easy to purge Windows of unneeded files.

Click Analyze to see how much space you'll save and then click Run Cleaner.

Now, click the Registry tab, click Scan For Issues, and click Fix Selected Issues. This likely won't have any impact on Windows' performance, but it can't hurt. When prompted, agree to back up the Registry. After choosing a location, click Fix All Selected Issues.

Finally, click the Tools tab. Click the Uninstall box and see if there are any entries in the Programs To Remove section that you no longer need. Click an unwanted program and click Run Uninstaller. Then click the Startup tab, see if there's anything on the list that you don't use, click it, and click Disable. This prevents it from running automatically when Windows boots, preserving system resources.

Repeat these steps every month or so to keep Windows lean and mean. ▐▌

BY TRACY BAKER

Windows Maintenance

Easy Registry Editing

Those who used to troubleshoot Windows 3.1 systems might remember the config.sys and autoexec.bat files. These configuration files were relatively easy-to-edit text-based files that, along with a few other INI files, contained most of the important system and application configuration information. With the advent of Windows 95, Microsoft started moving away from these relatively simple configuration files into the more complex Windows Registry. Today, the old Config.sys and Autoexec.bat files are gone and in their place is a more complex system of keys and values. And while it may seem intimidating at first, the Registry can be a helpful Windows tool, so it's worth getting to know. With a little guidance, it won't seem so foreign. Read on to learn the Windows Registry basics.

What Is The Registry?

The Windows Registry is a central location for maintaining operating system, application, user, and hardware information. If you make a change to the operating system, for instance, that change is reflected in the Registry. In theory, you could make the change to the Registry yourself and get the same result, but as you'll see, the Registry is complex, and it's best to only edit it manually when you have no other option.

Look in on your Registry. To view the contents of your Windows Registry, you use a tool called Registry Editor. In Windows XP, click Run in the Start menu, type **regedit**, and press ENTER. In Windows Vista/7, open the Start menu, type **regedit** in the Search field, and press ENTER.

The Registry is divided into keys, subkeys, and values. If it helps, you can think of the Registry's structure as being similar to that of your folders and files in My Computer. Keys and subkeys are similar to folders and subfolders, respectively, while values are similar to files. Like folders, keys and subkeys are arranged in a hierarchical order, while values reside within a specific key like files within a folder. In the Registry Editor, you'll see keys and subkeys listed on the left side of the window. Double-click a key to view subkeys. Click a key or subkey to see the values contained in it displayed on the right side of the Registry Editor.

Registry organization. In WinXP, Vista, and Win7, you'll notice five main keys. These keys are often abbreviated to save space. These keys, with common abbreviations listed in parenthesis after, are:

HKEY_CLASSES_ROOT (HKCR)
HKEY_CURRENT_USER (HKCU)
HKEY_LOCAL_MACHINE (HKLM)
HKEY_USERS (HKU)
HKEY_CURRENT_CONFIG (HKCC).

Different types of information are grouped into these five main keys. Aspects relating to the Windows user interface are commonly found in HKCR. This includes file extension maps. If you double-click a DOC file in Windows Explorer, Windows will consult HKCR to decide how to open the file (in this case, it will decide to open the file in Microsoft Word).

HKU, as the name implies, contains data relating to each user account on the system. HKCU is a subset of HKU that points specifically to the configuration settings of the user that is currently logged in to Windows.

HKLM contains information about the hardware and software found on a
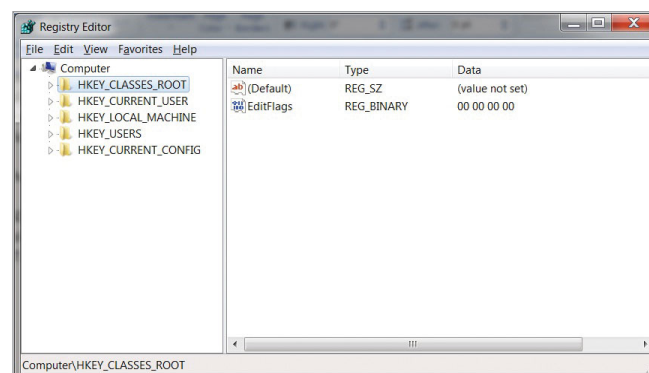
This is the Windows Registry. Pictured here are the five main keys found in WinXP, Vista, and Win7. Values for the currently selected key appear on the right side of the Registry Editor.

particular computer. You can have different hardware profiles in Windows, so HKCC is a subset of HKLM that relates specifically to the system's current hardware configuration.

As you click through various keys, you'll see values displayed on the right side of the Registry Editor. Many keys have more than one value, and each value contains a name, type, and data. Looking at values of each key, you'll notice five main types of values. REG_BINARY is a raw binary value (often displayed in hexadecimal format) and is usually related to a hardware configuration. REG_DWORD values are often associated with device driver and system services and often use either 0 or 1 as the data (to indicate the hardware or service is disabled or enabled, respectively). REG_SZ indicates a human-readable (as opposed to raw binary) string value (such as a word). Other types of string values include REG_EXPAND_SZ, which indicates a variable string, and REG_MULTI_SZ, which contains a list of strings.

Back Up Your Registry

Given that a mistake while manually editing your Registry could result in serious consequences, you should always back up your Registry before working on it. There are two main methods you can use for backing up and restoring your Windows Registry.

System Restore. One commonly recommended method for backing up your entire Registry is to create a System Restore point. One advantage of this method is that you also protect other data essential for booting up Windows.

To create a restore point in WinXP, click the Start menu, All Programs, Accessories, System Tools, and then System Restore. In the System Restore window, select Create A Restore Point and click Next. Provide a descriptive name for the restore point and click Create. In Vista and Win7, right-click Computer in the Start menu and select Properties. Click System Protection on the left side of the window. Click the
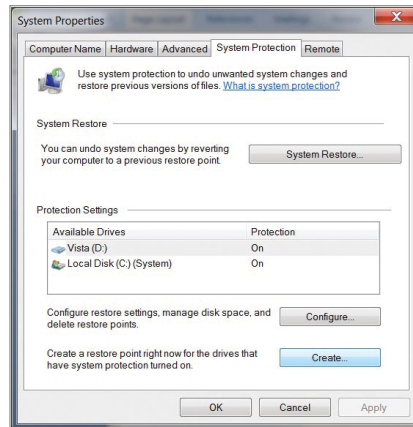
Before you work on your Registry, always create a backup. System Restore, pictured here, is one way to back up your Registry (along with other important system files), but remember that restore points can disappear without warning.

Create button, provide a name for the restore point, and click Create again.

To restore from a previously created backup point, click the Start menu, All Programs, Accessories, System Tools, and System Restore. In WinXP, make sure Restore My Computer To An Earlier Time is selected and click Next. In WinXP, flip back through the calendar and look for valid restore points in the past. In Vista and Win7, you'll see a list of valid restore points after clicking Next. Select a restore point and follow any further instructions.

Export your Registry. While restore points are helpful, they have limitations. Restore points can be deleted without warning. And, if you're cleaning the Registry after removing malware, you may not want to memorialize an infection in

a restore point. Instead, export part or all of your Windows Registry.

To export your entire Registry, click My Computer (or Computer) above the list of keys in the Registry and click File and Export. Choose a place to save the file and provide a descriptive file name. If you're only working on part of the Registry, right-click the key you're working on and select Export. To restore your Registry, select Import from the Registry Editor File menu, select your backup file, and click OK.

Edit The Registry

Making changes to the Registry is an easy process, but knowing what changes to make is the difficult part. Only make changes to your Windows Registry if you have instructions from a trusted source and you're clear about what the instructions are directing you to do.

Keys and values can be deleted by right-clicking the key or value and selecting Delete. To change the data stored in a value, right-click the value name, select Modify, and make the changes. You can also add keys and values. To add a key, right-click the key under which the new key should appear, select New, and click Key. To add a value, right-click the key in which the value should appear, select New, click the proper type of value, and provide the proper data.

While the Windows Registry can be intimidating, with this introduction, you'll feel more confident when you do need to delve into it. ▮

BY CHAD DENTON
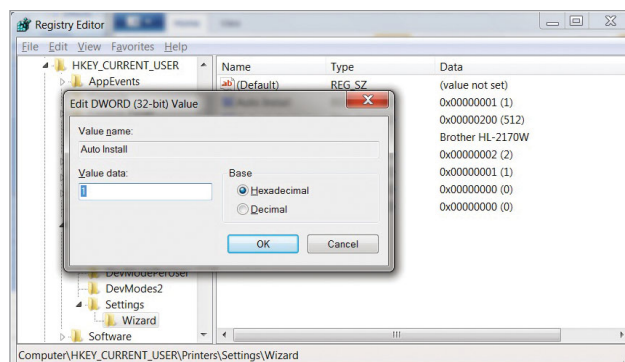
To change data in a value, right-click the value you want to change and click Modify. DWORD values, such as the one pictured, usually contain a 0 (for disabled or off) and a 1 (for enabled or on).

Top Security Breaches

Money, Personal Data & More Up For Grabs

Cybersecurity is big business—and not just for companies selling software to guard against attacks. A February 2010-released report from McAfee, for example, estimates that criminals swiped $1 trillion from users and companies via the Internet in 2008. Examples of major security breaches are numerous, as the following illustrates.

Get Rich Or Die Tryin'

At least $200 million in losses, tens of millions of stolen credit and debit card numbers, and 20 years in prison. Those are the numbers linked to Albert Gonzalez, ringleader of an "Operation Get Rich or Die Tryin'" group of hackers who breached the security of computer systems that TJX Companies and Heartland Payment Systems operated in 2007 and 2008, respectively. Beyond selling stolen numbers to other criminals, Gonzalez and company also took cash from ATMs. Sentenced in March 2010, Gonzalez's prison stint is the longest that a hacker has received in U.S. history and covers three separate convictions.
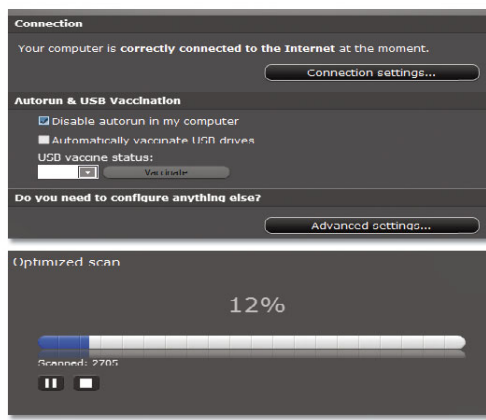
Phish Phry, Anyone?

In what has been hailed as the biggest U.S. phishing scam ever, the FBI arrested 100 people in October 2009 in the United States and Egypt accused of scamming bank account numbers and other personal information from users as part of "Operation Phish Phry." Allegedly, the accused crooks transferred about $1.5 million in stolen funds to fake accounts before a two-year FBI investigation resulted in 53 U.S. residents charged with various counts of wire, bank, and computer fraud; identify theft; and domestic and international money laundering.

RockYou Misses The Beat On Passwords

In December 2009, a hacker used an SQL (Structured Query Language) Injection flaw to break into a database that RockYou (www.rockyou.com), a maker of social networking applications, used to store user account information (in plain text, no less), including email addresses and passwords for 32 million users. In a study that Imperva (www.imperva.com) later conducted of all 32 million passwords, less than 1% of the passwords users created when establishing a RockYou account were deemed as being strong. The most popular password users generated was the incredibly breakable 123456. Worse, Imperva estimated that many users use identical or very similar passwords for all sites they must log in to.
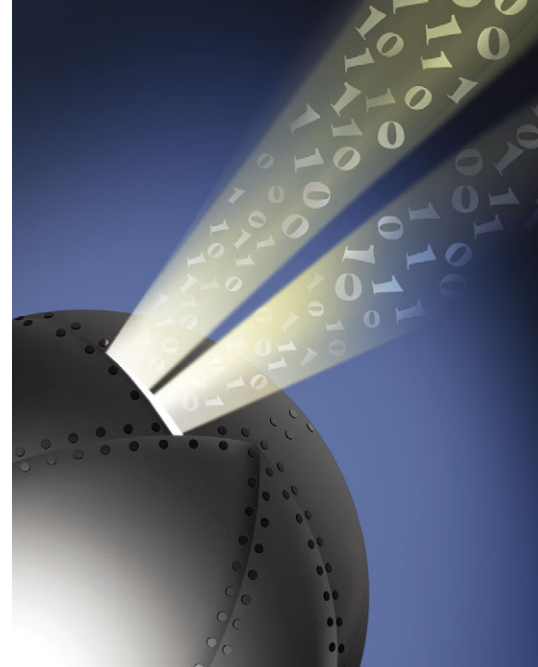
New iPad, New Problems For AT&T

Days after the iPad debuted in June, a group called Goatse Security used a security flaw in AT&T's Web site to expose roughly 114,000 email addresses of new iPad users—including celebrities, media and technology figures, and military and elected officials—who signed up for AT&T wireless 3G service. AT&T later notified users that "the matter has been resolved," blaming the attack on hackers maliciously exploiting a function of AT&T's iPad login process. ∎

BY BLAINE FLAMIG

Panda Security

Panda Takes Anti-Malware To The Clouds

If you're in need of antivirus software and you like the sound of "free," check out Panda's recently upgraded Panda Cloud Antivirus Free Edition (www.cloudantivirus.com). Billed as "the first and only cloud-based anti-malware service to protect home computer users both on and offline," the software uses Panda's cloud computing-based Collective Intelligence database to analyze known and unknown malware. Further, the software's cloud computing nature means most collecting and processing of malware happens in the cloud vs. a user's PC, meaning fewer PC resources are required. Panda also sells a Pro version for $29.95. ∎

Tech Support
Security

Pest Control

Remove Stubborn Bugs

If your computer has a virus its security software can't detect or remove, it's time to roll up your sleeves and go after the bug yourself. Each month, we show you how to root out deeply entrenched viruses.

Trojan-Spy.Win32.Zbot.gen
Description

Trojan-Spy.Win32.Zbot.gen is that nasty piece of malware every computer user fears. Although often classified as a Trojan, Trojan-Spy .Win32.Zbot.gen has been known to use backdoor security exploits to sneak its way onto a system. Once there, Trojan-Spy.Win32.Zbot.gen sits in the background, recording keystrokes and, according to some, taking screenshots of your PC. Captured data could include such sensitive information as credit card data, username and password combinations, and other highly sensitive information of a personal or financial nature.

How To Tell If Trojan-Spy.Win32.Zbot.gen Is Installed On Your System

Trojan-Spy.Win32.Zbot.gen is designed to run in the background and be as unobtrusive as possible. As a result, symptoms can be extremely hard to spot. Obviously, if you're having problems with identity theft, you should thoroughly scan your system. If you have a lot of malware on your PC, this malware may well be on your scanner's list of found problems.

How To Manually Remove Trojan-Spy.Win32.Zbot.gen

The good news is that Trojan-Spy.Win32.Zbot.gen isn't particularly hard to remove. You should begin by searching for and removing the files

created by Trojan-Spy.Win32.Zbot .gen. Note that not all files might be present on your system.

Begin by searching for 1053.exe. In Windows XP, click Search in the Start menu. Click All Files And Folders on the left side of the Search Results window. In the All Or Part Of The File Name field, type **1053.exe**. Click the arrow next to More Advanced Options and make sure there's a check next to Search System Folders and Search Hidden Files And Folders. Click the Search button to begin the search. Windows Vista and Windows 7 users should type **1053.exe** in the Search Programs And Files field in the Start menu and press ENTER. If you don't get any initial results, click the Computer button under Search Again In.

Whether you're using WinXP, Vista, or Win7, if you receive any results, right-click the result and select Delete while pressing the SHIFT key (to permanently delete the file and skip the Recycle Bin).

Repeat the steps above for each of the following files: Bana.exececog.exe, Chi45.sys, Crypt_ldr.exe, Demo.exe, Dondom.exe, Dropped.exe, and Eag1b.exe.

Four additional files are found in the Windows System folder. The exact location of this folder depends on the

Edit The Registry

Warning: Making a mistake while modifying your Windows Registry can cause severe errors. Always follow instructions carefully when modifying your Windows Registry. Before making any changes, create a backup of your Registry. To create a backup, click Run in the Windows XP Start menu and type **regedit** *to open the Registry Editor. (In Windows Vista and Windows 7, type* **regedit** *in the Start menu Search field.) In the Registry Editor, click File and Export. Select a location to save the backup and provide a name for the backup.*

Registry keys are arranged in a hierarchical structure similar to directories and are listed on the left side of the Registry Editor window. If you select a key, you can view individual values on the right side. While you can delete or modify these values, in most cases, you'll need to delete a key by right-clicking the proper key on the left side of the Registry Editor and clicking Delete.

In the left side of the Registry Editor, navigate to:

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion

Right-click the Network value on the right side of the Registry Editor and select Delete. Next, select the Winlogon=%System% subfolder and remove Ntos.exe and Userinit.exe.

Smart Computing / August 2010 **91**

version of Windows you're running, but you can use a variable, consistent across all versions of Windows, to quickly point you in the right direction. Open My Computer; in the Address bar, type **%SYSTEM%** and press ENTER. Search for and remove the following files: Ntos.exe, Twext .exe, and Wsnpoem.exe. To remove the last file, click the Drivers folder in your Windows System folder. Search for and delete Wsnpoem.sys.

Now that the relevant files are removed, you must remove a few Registry entries. For more information on removing Registry entries, see the "Edit The Registry" sidebar.

Live PC Care

Description

Live PC Care is yet another rogue anti-malware application. During the install, Live PC Care installs a number of otherwise harmless dummy files that it later claims to be malware. Users are bombarded with fake security warnings and alerts urging them to pay for the full version. In addition to barraging users with fake warnings, Live PC Care can also hijack your browser and redirect you to malicious sites. Live PC Care seems to be closely related to other rogue applications, including My Security Wall and PC Live Guard, all of which feature the exact same user interface.

How To Tell If Live PC Care Is Installed On Your System

Like most rogue malware applications, users should have no trouble telling when Live PC Care is installed on their systems. In addition to the frequent security warnings and alerts, infected users may also notice that they're being redirected to random Web sites and that searches take users to Findgala.com rather than their previous default search engine.

How To Remove Live PC Care With Malwarebytes Anti-Malware

These rogue applications can be difficult to remove. Anti-Malware from
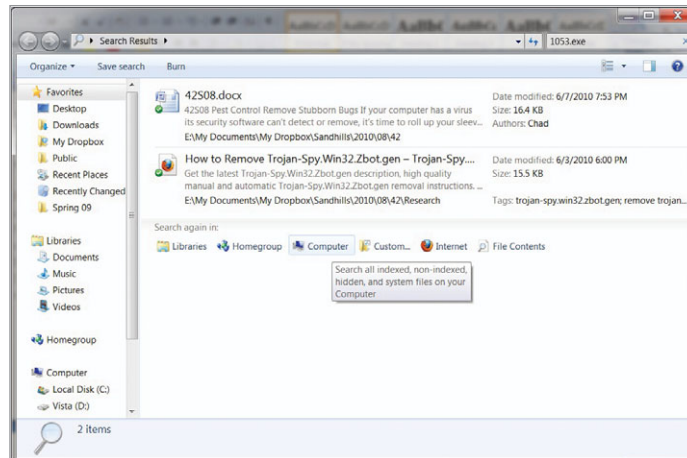
When searching in Windows Vista and Windows 7, you may need to click Computer under Search Again In. This search may take some time to complete.
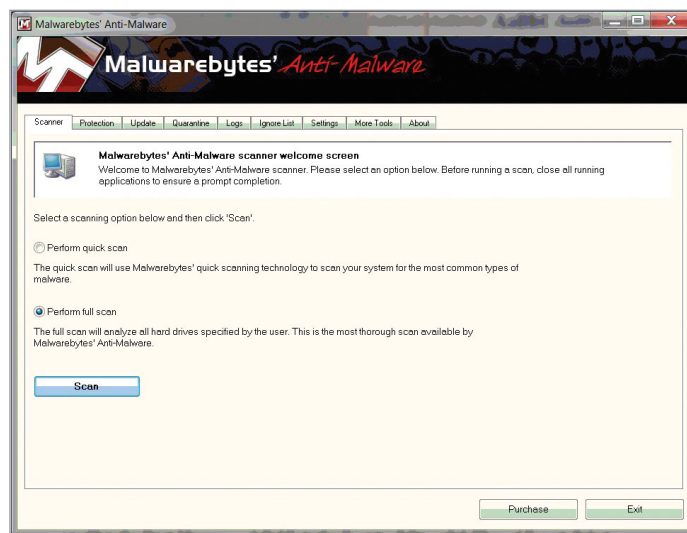
Malwarebytes Anti-Malware is a legitimate anti-malware tool that can be extremely helpful in deleting rogue anti-malware applications such as Live PC Care.

Malwarebytes is a free, legitimate anti-malware application that should be able to do most of the heavy lifting for you.

If you haven't downloaded the latest version of Anti-Malware, you can download the free version from www.malwarebytes.org. Once the download is complete, run the installer and follow the prompts. (If you have a choice and you're unsure what to do, the default options usually work just fine.) Before clicking the Finish button to close the installer, make sure you place a check next to Update Malwarebytes Anti-Malware and Launch Malwarebytes Anti-Malware.

Anti-Malware will download and install any new updates after you

click Finish and then launch the application. If you get a UAC (User Account Control) prompt asking you whether it's OK to run Anti-Malware on Vista and Win7 systems, click OK. Under the Scanner tab, select Perform Full Scan and click the Scan button. Anti-Malware may take some time to complete the scan. When the scan is complete, click OK and then Show Results to view the results. Make sure there's a check next to all items found and click Remove Selected. Anti-Malware will open a summary in Notepad. You can close the summary, exit Anti-Malware, and reboot your system. Live PC Care should be gone. ▐▌

BY CHAD DENTON

Search Safely

With A Web Link Advisor

Most Web links are harmless, but some of them are designed to pose as normal links to lure you into dangerous territory. This makes it difficult to predict whether your friend's email links to the cute Web video that's promised or to a malicious Web site. To avoid becoming a victim of a malicious link, some people have turned to programs that inspect Web sites and assign them safety ratings.

Don't Fall Victim

According to the IBM X-Force 2009 Trend And Risk Report, malicious links grew by 345% in 2009 from the previous year, which means cybercriminals have found a profitable business model. For example, phishing schemes found in messages include a link that is similar to a legitimate company's URL (uniform resource locator) to trick victims into going to a malicious Web site. Once at the malicious site (which often looks much like the company's site), victims share information, such as usernames and passwords. Cybercriminals are also able to download malware onto your computer if you click a bad link.
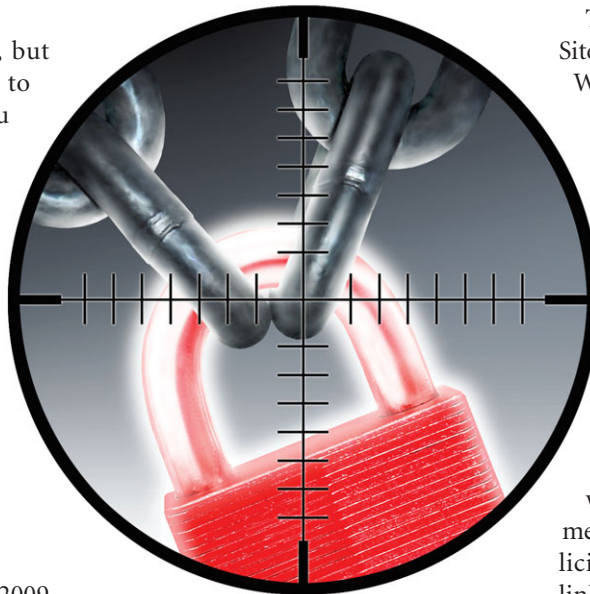
These links appear in all types of messaging, including email, chat, and social networking.

Programs such as McAfee's SiteAdvisor Plus ($19.99; www.mcafee.com) can help thwart these criminals through both Web site safety ratings and anti-phishing features. When you get an email from what seems to be a legitimate source (such as your bank or your credit card company), SiteAdvisor Plus lets you know whether the attached link will really take you to the organization's site. SiteAdvisor Plus can also block connections to sites and downloads it

deems unsafe. That's particularly useful when you plan to give personal information to the site you are visiting.

Know Before You Go

The Web safety ratings from SiteAdvisor Plus let you see whether a Web site has any risks before you click it. When your search query nets results on popular search engines, SiteAdvisor Plus adds an icon next to each of the results that signals whether the site could be harmful.

If you get a green circle with a check mark in the middle, the Web site has been verified and is safe. The yellow icon with an exclamation point indicates you should proceed to the Web site with caution. A red circle with an X means the Web site is known to be malicious. The same icons are used for links that show up in emails, instant messenger messages, and social networking messages. When SiteAdvisor labels a Web site, you can move the mouse cursor over the top of the icon to find out more about the threats associated with that site.

SiteAdvisor Plus also adds a button to your browser's Address bar to rate the URLs you enter. The button's color code is simple: Green indicates a safe, legitimate site; yellow cautions that the site may (or may not) be legitimate; and red denotes a malicious site.

Safety First

The Web has created new and easy ways to do everyday things, such as gather information, shop, and bank. However, it's important to make sure you're doing these things safely and protecting yourself from fraud or malware. You can best protect yourself with Web safety programs that guide you toward safe sites and help you steer clear of the malicious ones. ▐▌

BY TESSA WARNER BRENEMAN

SiteAdvisor Plus will label each search result with a safety rating so you know what's safe to open. You can find out more by moving the mouse cursor over the rating.
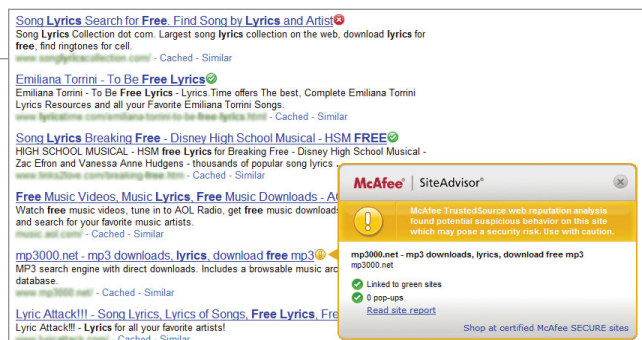
Configure Your Wireless Router

Simple & Important Security Settings

When setting up your wireless router, you may think it's acceptable to keep the device's factory security settings. The truth is that you must change certain settings to ensure that neighbors or other outsiders can't gain access to your home network. Each custom setting makes it that much more difficult for hackers to steal your signal. Using a Trendnet 300Mbps Concurrent Dual Band Wireless N Gigabit Router TEW-673GRU ($149.99; www.trendnet.com), we'll show you which settings can be changed and explain how those changes will make your wireless network safer.

The Basics

After you've installed your router and made sure you have a working Internet connection, the next step is to configure its security features. Most instruction manuals for routers provide an IP (Internet Protocol) address that you can plug into your browser's Address bar to enter the router's settings menu. Some common IP addresses (for router menus) are 192.168.1.1 and 192.168.0.1. The TEW-673GRU's IP address is similar: 192.168.10.1. Once you put the IP address in your browser's Address bar and press the ENTER key, a login page prompts you to enter the router's username and password. (You can get this information from your users manual. In many cases, the default password is **admin**.) Now you are logged into the router and can change settings.

The first setting you'll want to change is the password that you just used to log into the computer, so malicious users can't access your router's settings menu. Look for an Administrator Password (or similar) page, create a new username and a password, and then click the Apply or Save button. We recommend using a variety of letters and numbers to make the password more difficult to discover.

Wireless Security Settings

Now that your router's settings menu is safe, it's time to configure the router's wireless security settings so malicious users and curious neighbors can't access your network from their wireless computers. There is a setting you may want to change (the SSID [Service Set Identifier]) and another setting you must change to protect your network: wireless data encryption.

SSID. The SSID is the name that appears on a user's computer when he searches for wireless networks. Your router is already sending out a default SSID.

Click the Wireless tab on the main router settings page. On this page, you can change the SSID of your network at any time and choose whether you want to enable or disable SSID broadcast. We recommend disabling the broadcast, so when people search for wireless networks, yours won't appear on the list. When you want to temporarily enable it so family members can gain access to the network, the option is available on this screen. (They can also connect to the network by entering the SSID into their wireless network software.)

Wireless encryption. Enabling your router's wireless encryption feature is one of the most important changes you can make to protect your network.

The Trendnet TEW-673GRU is a dual-band Wireless-N router for a small office environment as well as for the family that has multiple computer users and/or gamers.

Tech Support

The router's settings menu likely offers several encryption types, including WEP (Wired Equivalency Protocol), WPA (Wi-Fi Protected Access) and WPA2. WEP is an older security measure that can be easily compromised by even casual hackers. We recommend using the newer version of WPA, which is WPA2.

In the TEW-673GRU's settings, click the Wireless tab and then select WPA2 from the Authentication Type drop-down menu. Next, enter a password in the Passphrase field. (Use at least eight characters, including some numbers.) After you're finished, click Apply. Enabling encryption requires that your custom passphrase be entered whenever a new user (such as a visitor or a family member) attempts to access the network.

An Extra Layer Of Security

Many routers let you limit network access to specific MAC (Media Access Control) addresses. A device that can connect to your network (such as your computer's wireless adapter) has a MAC address, which is a unique identification number. The TEW-673GRU has a tool that lets you add MAC addresses to a list and decide whether or not to allow or deny them to the network. You can use this feature to allow certain users to access the network and then block all other MAC addresses that aren't on the list.

If you want to use the MAC address filtering setting with your wireless network, you'll have to be able to identify the addresses of each computer that will access it. There are third-party programs available that can help you find your computer's MAC address, but it can also be done right from your computer. In Windows Vista/7, click Start and enter **cmd** into the search field. (In WinXP, click Start and Run and then enter **cmd**.) Press the ENTER key. A new window will appear. Enter **ipconfig /all**, press ENTER, and look for the Physical Address subhead. The MAC address will appear next to it. You can then enter this address into your router's settings and allow it to use your wireless network.

More To Think About

You set up your wireless network and changed all of the necessary settings, and you feel comfortable that only authorized users can access it. Another issue to consider is router placement within the home or office. The closer the router is to an outside wall of your home, the farther the signal might reach. If moving the router to the back of your house prevents its signal from reaching the street, it might be worthwhile to move the router so malicious users won't spot it when they drive past. ❚❚

BY JOSH COMPTON
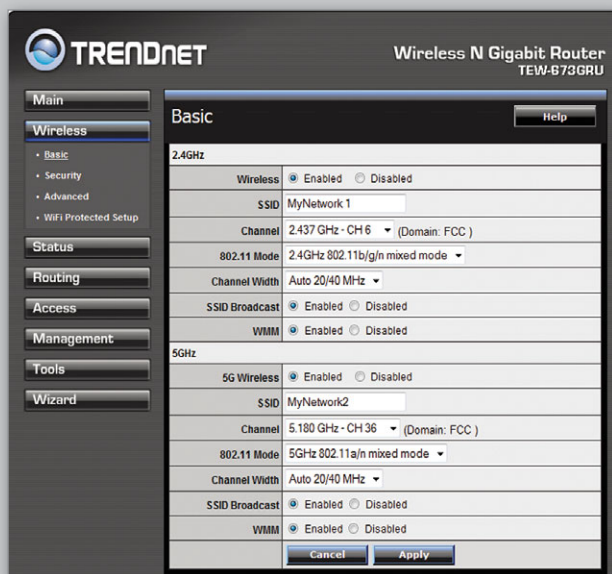
From this page, you can change your SSID and decide whether or not to broadcast it. Trendnet has included an option that lets you turn off your wireless network if you don't plan to use it for a long period of time.
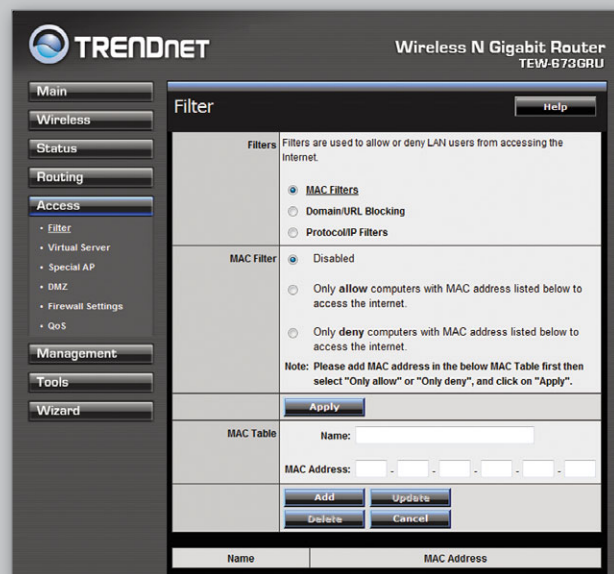
Entering individual MAC addresses to your router is a good way to limit network access to certain computers. Trendnet's Filter page allows you to add and name MAC addresses and allow or deny specific domains and URLs.

Protect Your Passwords

Password Managers Do The Heavy Lifting

Creating A New Safenote

RoboForm has a feature called Safenote, which includes a document on which you can jot down important numbers, such as passwords or software activation codes, and keep them secure until such time as you need them. Click the RoboForm icon on your browser toolbar, point to Safenotes, and click New to create a Safenote.

If you're like most people, you have a slew of passwords you must remember for email, online banking, social networking, and any number of other sites and services. Some people have dozens or even hundreds of online accounts.

On the one hand, you can use the same password (give or take a digit) for every account. Although that's certainly easy on the 'ol memory banks, it's terribly unsafe. All a cybercriminal has to do is hack one Web site with weak security to get your password and unlock your entire digital life.

On the other hand, if you use a different password every time you sign up for a new membership or service, you have about a snowball's chance at remembering very many of them.

There are a few tricks to get around the problem of remembering passwords, but you can use a password manager such as RoboForm Pro ($29.95; www.roboform.com) to do the remembering for you. We'll show you how.

You can download a free trial of RoboForm. During the installation, you'll be prompted to create a Master Password. Choose this password wisely, because it will be the key to all of your personal data. It must be both very strong (with a variety of letters, numbers, and symbols) and also memorable, lest you forget it. (And do not write it down anywhere!) All of the information you enter into RoboForm is protected by this password.

Once the program is installed, RoboForm controls will appear in your Web browser's toolbar; they will also be available in your Taskbar.

Secure Web Site Logins

RoboForm uses something called a Passcard to acquire your login information for Web sites that require a username and password. When you visit such a Web site, enter your username and password as always; when you then attempt to log in, an Auto-Save dialog box appears and asks you if you want to save that data as a Passcard. Click Save, enter your Master Password when prompted, and click OK.

The next time you want to visit that site, click Logins on the RoboForm area of the browser Toolbar and select the site from the list. RoboForm automatically logs you in.

Automatic Form Filling

RoboForm also lets you set up an Identity, which stores certain personal info. RoboForm uses this data to automatically fill in Web forms for you.

To set up an Identity, click Setup Form Filling on the toolbar. Enter your name and country and then go through all the tabs and enter information where indicated, such as your job title, Yahoo! ID, driver's license number, name of the company you work for, and even credit card and banking information if you so choose.

When you have entered the information you wish to include, click Save & Close in the upper-left corner of the window. ▌

BY SETH COLANER

You can create an Identity in RoboForm so that the software can automatically fill in Web forms with your personal information.

Protect Your Data

Encrypt Important Files

Medical records, tax documents, and other files with personal information are often stored on personal computers. If you don't encrypt files that include personal information, you risk making yourself an easy target for cybercriminals. Encrypted folders, which are referred to as vaults, can lock down your information, so it's unavailable to anyone without your password. CMS CE-Secure Vault Edition Pro ($39.95; www.cmsproducts.com), for example, uses the well-known, strong AES (Advanced Encryption Standard) 256-bit algorithm to create encrypted vaults on your computer or portable storage device, so your sensitive files can be stored securely. In this article, we'll explain how you can create encrypted vaults using CE-Secure.

Create An Encrypted Vault

Once you've downloaded CE-Secure from the Web site or using an installation CD, you're ready to create an encrypted vault. With the CE-Secure program open, click the Encrypt button. Choose a location and name for the folder, along with the folder's capacity (Vault Size). Vaults must be at least 1MB. Available Space refers to how much space you have on your hard drive or portable storage device, and Space Remaining shows you what that capacity will be after you create your vault.

Next, you'll choose a passphrase (password) for your vault. The Strength rating under the passphrase text fields indicates the strength of your passphrase. Cybercriminals will use a variety of methods to break through a password, and the stronger your passphrase is, the harder it will be to figure out. To learn more about how to create a strong passphrase, click the What's This? button. Aim for the Best rating (bright green), which requires 14 characters or more (up to 64) and a wide variety of letters, numbers, and other types of characters. Additionally, no letter combinations can be similar to dictionary words. You can change the passphrase of your vaults at any time by clicking the Pass Phrase button at the top of CE-Secure program. When you are done, click Next to create your encrypted vault.

Now you will choose how to unlock the vault. Click the Unlock button and then select a drive letter. Choose between Explorer Window, Read-only folder, or Removable Media as the means for opening your vault. We recommend using Explorer, as the Windows browser is easy to use and you are familiar with it. Then, enter the passphrase you chose on the previous step. Click Next. Once you have successfully unlocked your vault, click Main.

Lock & Unlock Vaults

You must use the CE-Secure program to lock or unlock vaults. To open a locked vault, click the Unlock button and then select the vault you want to unlock from the list below. Click Next. Choose how you want to open the folder, enter the passphrase, and then click Next to open your vault.

Encrypted vaults can also be deleted from the Unlock menu. When the list of folders appears under the Unlock menu, select a folder, click Delete, and then click Yes to send the file to the recycle bin. If you decide to restore the files later on, they won't be automatically listed in the list of files to unlock. Use the Browse button to find the restored vaults.

To lock a vault you have open, click the Lock button, and then choose the folder from the list. Click Next and your vault will be locked. Your files are protected. ∎

BY TESSA WARNER BRENEMAN
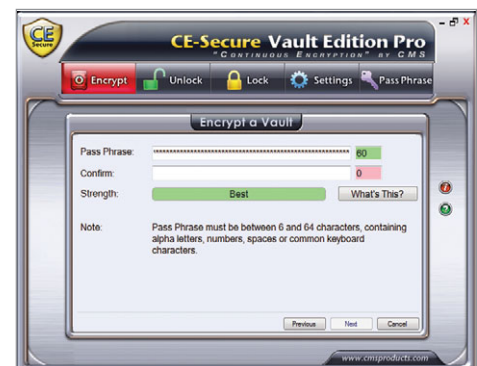
Choose the vault you want to unlock from the list. You can also delete vaults from the Unlock menu.

Keep Your Notebook Safe

Don't Be An Easy Target

Notebooks possess many positive features for both business and personal use. Not only are laptops functional, but they are also easy to store, require less space than desktop PCs, and are portable; notebook users can work almost anywhere at any time.

However, these positive attributes produce a negative side effect. The notebook's portability makes it an easy target for thieves. Replacing the data and the notebook itself can be a time-consuming and expensive endeavor, so it's worth the time (and expense) to protect your notebook.

Lock It Up

One way to prevent the theft of a notebook is to secure the device to a desk or immovable object with a cable lock. Most notebooks have a small slot that accommodates cable locks. Press the lock's hook into the slot, twist the key (or roll the combination dials), and your notebook is now secured to whatever furniture you wrapped the cable around.

Kensington is a major producer of cable locks (and also manufactures security slots for many notebooks). The products feature carbon-tempered steel cable and Kensington's T-bar design.

The Targus DEFCON 1 Ultra Laptop Security System secures your laptop computer, and a high-decibel alarm sounds if the cable is severed.

The Kensington ComboSaver Combination Portable Notebook Lock ($29.99) allows a user to carry the lock in a bag or backpack and attach when needed. The MicroSaver DS Keyed Ultra-Thin Notebook Lock ($49.99) protects low-profile laptop models. The MicroSaver Keyed Twin Notebook Lock ($69.99) secures two devices at the same time.

Another option for deterring laptop theft is a notebook alarm. The Targus DEFCON 1 Ultra Laptop Computer Security System ($54.99; www.targus.com) includes a retractable steel cable that attaches to the notebook's security slot. A high-decibel alarm sounds if the cable is severed or if the motion sensor is activated.

Cable locks and computer alarms are just a couple of physical options for discouraging thieves from taking your valuable notebook. Another prevention method—a solid option for offices—is affixing the STOP (Security Tracking of Office Property; www.stoptheft.com) security plate on your equipment. Plates start at $15 per computer in packages of 15.

The STOP security plate, bearing a unique bar code and registration number, permanently adheres to the equipment. Delivering a warning against theft, this distinctive plate includes text intended to dissuade someone from stealing the notebook (and failing that, prevent him from re-selling it). If the plate is removed, a permanent marking reads "Stolen Property." Service includes a toll-free 24-hour recovery hotline and a Web-based tracking database.

Track Your Stolen Notebook

If your notebook is stolen, Laptop Cop Software ($49.95; www.laptopcopsoftware.com) provides a range of services to not only recover the computer but also recapture the important data and documents stored within.

The software works with both 32-bit and 64-bit versions of Windows 2000/XP/Vista/7. If your notebook is stolen, the software allows you to log onto it (if the notebook connects to the Internet) from any computer and begin to secretly retrieve and delete important files. The software also monitors the thief's activity on the computer, from the email he sends and receives to the Web sites he visits. Using Wi-Fi hotspots, the software allows users to track the location of their computers. Laptop Cop's recovery team helps to retrieve the stolen equipment.

An Ounce Of Prevention

An array of options exist to deter thieves and to protect your notebook from being stolen. It's possible to enjoy the portability benefits of your laptop without sacrificing the security of your property and important documents. ‖

BY KIM QUADE

Comprehensive Security

What Do I Really Need?

As we rely increasingly on our computers and the Internet for everyday tasks and entertainment, the topic of security is more important than ever. With thousands of new threats created each and every day, it's essential that computer users understand how to protect their valuable information, both while online and while working on a home or small office network.

For all the security information out there, it can still be difficult to get a clear understanding of exactly what you need to be protected. This straightforward Q&A will address some of the most common concerns readers have about this topic so that you can enjoy some peace of mind next time you're at your computer.

Q Can I install more than one spyware, antivirus, and firewall program on my computer at once?

A Although multiple anti-spyware apps won't cause trouble, the same can not be said for doubling-up on most other security programs, such as antivirus and firewall programs. Adding more than one program to do the same task is probably going to cause problems on your PC, rather than solve them.

Antivirus programs, even though they may be from different manufacturers, are designed to function in similar ways. They require roughly the same amount of memory and access roughly the same parts of your computer to accomplish similar tasks. If you have two antivirus programs running at the same time, your computer will become bogged down and sluggish as the RAM and CPU are unnecessarily taxed twice as hard.

In the case of firewalls, trying to run two software firewalls on your computer at once may lead to more problems than just slow performance. Because firewalls control the traffic coming and going from your computer by opening and closing the appropriate ports (points of entry), having multiple such programs running at once could cause problems with your Internet connectivity or printing capability.

We spoke with two representatives from security company McAfee (www.mcafee.com): Dave Klenske, director of worldwide consumer product marketing and communications, and Dave Marcus, director of security research and communications. Both suggested investing in security suite software rather than doubling up your protection programs. A comprehensive security suite combines protection against spam, viruses, spyware, and more while also offering a firewall and backup capabilities. This all-in-one approach cuts down on any possible overlap that might bog down your computer or gaps in protection that could leave you vulnerable.

Q Should I have a software and a hardware firewall, or will they conflict?

A A firewall's job is basically to stand guard between your computer (or network) and the Internet. It monitors the information coming and going and blocks access to anything that shouldn't be there. To get the most protection possible, it's a good idea to have both a hardware and software firewall.
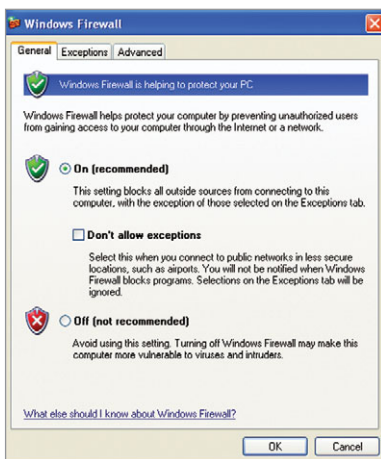
The software firewall that is built in and turned on by default in recent Windows operating systems offers a good layer of protection. That said, it shouldn't be your only line of defense.

Tech Support

Even if you don't have a network to protect, a router with built-in firewall capabilities such as this DIR-130 router from D-Link is a good idea.

On the software side, if you have decided to employ a security suite that offers protection against multiple threats in one program, make sure a firewall is included. If you choose to use individual protection programs, do some research on the many firewall programs available. Make sure you get one that you feel offers sufficient security with an interface that's easy to use.

The other option for a software firewall is to simply use the one built into Microsoft's operating system. In Windows XP/Vista/7, the firewall is on by default, but you can verify that it hasn't been turned off or change its settings by clicking Control Panel from the Start menu and then double-clicking Windows Firewall.

It's important to note that the built-in firewall in Windows, while a good layer of protection, is not designed to be your PC's only defense. For example, it can protect against malicious software worms but is not designed to guard against viruses or spyware. And if you decide to use a separate software firewall, either as part of a security suite or as standalone software, remember to turn off the built-in Windows firewall to avoid any potential conflicts.

You can also buy standalone hardware firewalls, but many manufacturers bundle them with broadband routers and modems, which are the devices you use to connect to the Internet and other types of networks. If you have a cable or DSL modem or a network router (some devices function as both router and modem), you'll want to check

to see if one or both also have a firewall built in. Check the manufacturer's Web site, users manual, or other documentation to learn the details of your product and determine how best to set it up to meet your specific security needs.

Q Does a router's firewall really provide so much security that I should buy one even if I have only one computer?

A You'd probably be rather hard-pressed to find a stand-alone hardware firewall these days that doesn't also pull double duty as a router. The number of devices cluttering a small-office user's desk can multiply rapidly, so getting a device that only serves a single security purpose doesn't usually make the most sense. Even if you only have one computer, a hardware firewall with built-in networking capabilities will keep you computing safely while preparing you for any additional computers you may add in the future.

There are many good products out there for novice-to-intermediate-level users whose security demands are rather low. The D-Link DIR-130 NetDefend (www.dlink.com; $104.99) is designed specifically for SOHO (small office and home office) users who don't want a lot of hassle to protect their information. The Web-based user interface is easy to monitor and manage, the enterprise-class security offers peace of mind, and the advanced networking features mean it's ready when you are to add another PC to the fold.

Q If my cable or DSL modem already has a router built into it, should I buy a router to add to it?

A In the same way that most routers include firewall capabilities, some broadband modems also function as a router. Whether you opt to add a separate router to manage the traffic on your network depends on a few things. For one, is your modem router wireless or wired?

The obvious advantage of a wireless modem router is that the computers in the network don't need to be physically

The Common Sense Defense

Of course, even the most powerful, up-to-date security suite and network hardware can't protect consumers from their own bad decisions. There are many scams online that prey on susceptible users eager to make a fast buck or get a great product for nothing. These types of tricky tactics are nearly impossible to protect against with security software or hardware. They require a healthy dose of skepticism and common sense on the part of the consumer. Here, a few reminders that sometimes your brain is your most important security tool.

- If it sounds too good to be true, it probably is.
- Don't click the link for a program if your security software is telling you not to install it.
- Stick to well-known, big brand names with a good reputation.

- Know what software you have on your PC and that it's current.
- Remember to update and scan for viruses daily.
- Read end-user license agreements and terms and conditions carefully.
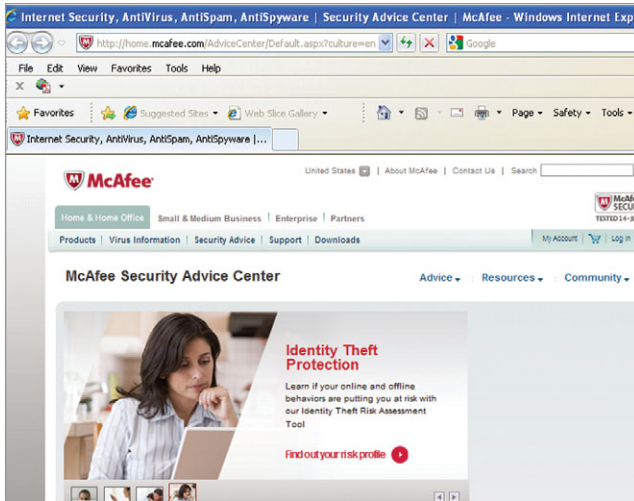
The McAfee Security Advice Center is a resource for users who want information on current threats and security advice from community members.
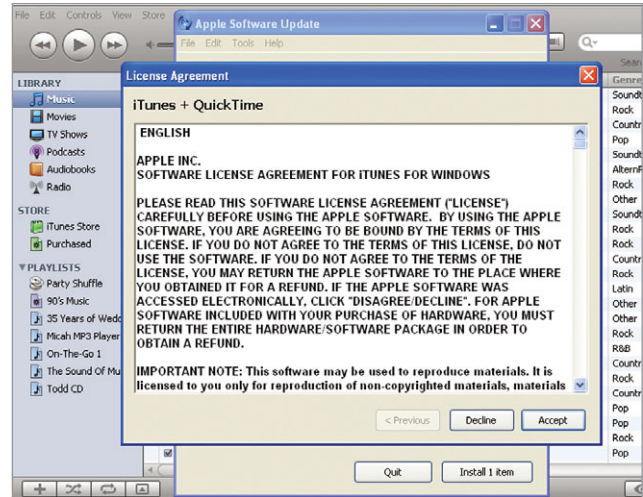
Sure, they're mind-numbingly boring, but it's important to read the EULA (end-user license agreement) and Terms and Conditions statements when buying or downloading a product. Many scams count on the fact that users don't often read the fine print.

connected (to the modem router) by Ethernet cable in order to communicate. The downside is that wireless connections tend not to offer as much speed and security as wired connections. If your network requires a high level of security and speed, you likely will want to make sure you're using a wired connection to the router.

The other thing to consider is your level of comfort with the technology and your willingness to set up an additional router and configure it properly. Having one device to manage and monitor is likely going to be easier than configuring a system where the router you're using is separate from the built-in version in your modem. This is a viable option, though, if your computing situation calls for it. Likely your best bet for help on adding a router in this situation would be the router manufacturer's Web site and/or technical documentation.

That being said, if your Internet provider has already given you the hardware you'll need to get online and it also functions as a router, it's probably best to just stick with that hardware. The simple reason? You run the risk of inviting problems with hardware and software compatibility when you introduce additional products into the mix.

Q **If a person could do just one thing to keep his computer safe, what would it be?**

A Unfortunately, there is no one "magic bullet" that will banish all your security problems for all time. "The most important thing," McAfee Klenske says, "is to ensure your PC has multilevel security." Don't be lulled into believing that you're covered if you simply have a good fire-

wall or good antivirus software. You need to be protecting yourself against all levels of threats all the time.

According to Klenske, one of the most common security questions he gets is, "Am I protected?" Many people are fooled by such viruses as FakeAV, which makes users think their computers are infected and tricks them into clicking a link that will offer help. And that's when they are actually infected. "If they receive any pop-ups telling them they have a problem on their system, they need to make sure the information came from the security software installed on their PC," Klenske says.

Checking in frequently with sites dedicated to security, such as the Security Advice Center from McAfee, is also a good idea. You can access the Security Advice Center by visiting www.mcafee.com, clicking Home And Home Office, and then choosing Security Advice from the drop-down menu.

Confident Computing

There are many different types of computer users out there, but they tend to fall into two basic categories: those who are scared to do anything online and those who really don't give security much thought. As you might guess, the ideal attitude toward Internet safety is somewhere in the middle.

Armed with the right tools and the proper perspective, you should feel confident that you can enjoy your screen time in safety. ▐▌

BY JENNIE SCHLUETER

Choose A PC Backup Drive

What You Need To Know

Make it easy to back up your data, and you'll do it much more often. Part and parcel of making backups easy is choosing a fast backup device without discs or cartridges you need to exchange. That's a hard drive.

Hard drives (particularly external hard drives) are the de facto backup media these days for other reasons, too. They have a lot of room—3TB (terabyte) models are on the horizon—and their storage space is extremely cheap per gigabyte.

OK, then; what kind of external hard drive is best for your desktop PC? (If you're a notebook user, flip ahead to "Choose A Notebook Backup Drive" on page 103.)

First, pick a form factor. This fancy term for physical size actually has a lot of bearing on your drive options. For instance, if you buy a 2.5-inch external drive, it will probably be portable and thus usable on more than one PC. A portable drive is also a good candidate for storage offsite. However, it will almost certainly use a USB 2.0 connection, which makes for slower backups than other newer connection types.

With a 3.5-inch external drive, you'll get more capacity, a lower price per gigabyte, and possibly a model with support for multiple interfaces, such as both USB 2.0 and eSATA (external Serial Advanced Technology Attachment). This lets you use the fastest connection your PC supports. The downside is that most 3.5-inch units are too fragile to carry around very much. Also, they require separate AC power connections, unlike most 2.5-inch USB 2.0 drives. The speed of the drive inside the enclosure really doesn't matter for a USB 2.0 or FireWire model, because these interfaces' performance limits are slower than those of today's drives. However, if you plan to use one of the faster interfaces, such as USB 3.0 or eSATA, you'll be able to enjoy more rapid backups.

Research the backup software that comes with each drive. How easy will it be to recover a single file from a backup set? Does the backup utility store your data in a proprietary format or simply copy your files from one drive to the other? The latter lets you recover your files even if you can't access the backup app.

Also, software that supports disaster recovery can completely restore your entire hard drive's contents. Traditional file-level backup software only archives your personal files, so if you needed to recover your system, you would have to reinstall your OS and applications manually. ▌▌

BY MARTY SEMS

External Drive Interfaces

These are the types of data connections current external hard drives come with. Interface speeds are expressed in megabits and gigabits per second, where 8Mbps (megabits per second) equals 1MBps (megabyte per second) and 1Gbps (gigabit per second) equals roughly 1,000Mbps. It's important to bear in mind that an external drive will be limited to either the interface speed (actually somewhat less in real life) or the maximum speed of the drive itself, whichever is slower. Also, an interface that's backward-compatible with earlier versions, such as USB 3.0, can't run older devices faster than their original interface will allow.

	Theoretical top speed	Comments
USB 2.0	480Mbps	Slow, but supported by virtually every computer of the last seven years; backward-compatible with USB 1.1
eSATA	6, 3, or 1.5Gbps	Fast, but a little slower than USB 3.0 in practice
USB 3.0	4.8Gbps	New and very fast; requires a compatible cable, but it's backward-compatible with USB 2.0 and 1.1
Ethernet	1Gbps or 100Mbps	Attaches to a network router for backup of multiple PCs
FireWire 400	400Mbps	About the same speed as USB 2.0
FireWire 800	800Mbps	Generally compatible only with Macs; uses a different cable connector than FireWire 400

Choose A
Notebook Backup Drive
What You Need To Know

How's this for good news: It's easier to pick a backup drive for your laptop than for your desktop because your choices are much simpler.

Assuming you want a portable external drive you can carry with you in your notebook bag, your options are virtually all USB models with 2.5-inch or smaller hard drives inside a plastic or metal enclosure.

Interface. USB 3.0 portable drives are just starting to appear on the market. Among other benefits (see the "Bus Power" sidebar in this article), the new USB version lets a drive read and write data as fast as it likes, as long as your notebook has a USB 3.0 port or adapter card.

In contrast, USB 2.0 caps data transfer to about 32MBps, which makes backups take much longer than necessary. USB 3.0 is backward-compatible with USB 2.0/1.1 devices, too.

Storage technology. For notebook backup purposes, it's hard to argue with the cost per GB (gigabyte) and overall capacity advantage of a portable hard drive over an SSD (solid-state drive). Even though the latter will take a bit more abuse, you shouldn't notice much of a speed difference between the two.

That said, external SSDs do exist, and they're certainly rugged enough for travel. On the other hand, capacities large enough for backup purposes are pretty pricey. A mere 64GB in USB 2.0 trim will cost you $145 or more online; plan on $220 or more for a USB 3.0 model that won't drastically limit its own speed.

Capacity. You can get a 1TB (terabyte) portable hard drive for as little as $130 online. Compare this with an external SSD, which will max out at about 256GB for approximately $780 on the Web, and it's obvious that magnetic disk media is still the way to go for this application.

Bundled software. Look into the software that comes with a portable drive, especially the backup app. If it's described as a drive imaging or disaster recovery tool, it backs up your operating system and programs in addition to your personal files. Some backup drives might even boot your laptop in an emergency, depending on your notebook. ▐▐

BY MARTY SEMS

Notice the two USB cables in this USB 2.0 Data Transfer Kit from CMS ($39.95; www.cmsproducts.com). One cable may be able to carry both data and power to the external 2.5-inch backup drive enclosure, but a second USB cable provides extra current if needed.

Bus Power

One of the nicest advantages of a 2.5-inch external hard drive is that it probably won't need an AC power adapter (as a 3.5-inch desktop model does). That cuts down on bulk and weight in your notebook bag when you want to carry your drive with you.

Instead of an AC adapter, a typical portable drive gets its power through the USB port of the host computer. This means that the drive can connect to your laptop with a single cable, which provides both data traffic and energy.

However, depending on the computer, a single USB 2.0 port may not provide enough power to run an external drive. This can also happen if you attach the drive to a USB hub that doesn't have its own separate source of electricity.

For cases such as these, manufacturers often bundle adapters or special USB cables with their portable USB drives. These adapters let the drive draw power from two USB ports instead of one when a single port isn't up to the task.

Note that new USB 3.0 ports supply a little more power than USB 2.0/1.1 ports to avoid this problem. And because USB 3.0 is backward-compatible with earlier devices, you shouldn't need to use more than one USB 3.0 port to fire up your USB 2.0 hard drive. ▮

Burn To Disc

Easy Backup
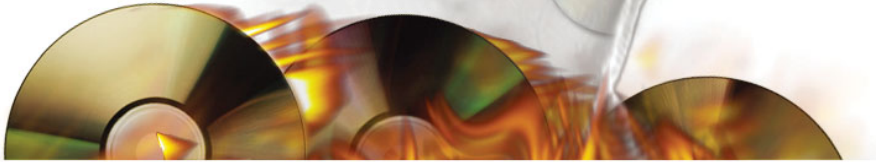
Backing up the data on your PC has always been a critical task, but as more and more of our music, personal photos, home videos, and documents are stored digitally, it's become necessary to back up our files more frequently. To help you out, Windows 7 features a Windows Backup utility, and here, we'll explain how you can use it to back up your files onto disc.

What You'll Need

The Windows Backup feature is found on all versions of Win7, including the Starter edition found on netbooks. Thus, all you really need is a PC with a CD or DVD burner and the discs necessary to store the files you want to back up. Win7 also allows you to back up content to a second hard drive, and if you run Win7 Professional or Win7 Ultimate, you can send the backup to another computer on your home network.

The Handoff

Click the Start button, select Control Panel, choose System And Security, and click Backup And Restore. Under the Backup section, click the Set Up Backup link and select your DVD or CD burner. Click Next, and you'll be greeted by the What Do You Want To Back Up? screen; Windows offers to choose the files to back up via the Let Windows Choose option, or you can select them by clicking the Let Me Choose radio button. If you allow Windows to select the files, it will automatically save the content in Win7's Libraries, anything on the Desktop, and the files in User folders, such as the Downloads or Documents folders.

If you don't store files in the default Windows locations, we recommend you select Let Me Choose. It includes the data that Windows would automatically choose to back up, such as the Administrator and User Libraries, and lets you select other folders. If you double-click your username, you can see the different Libraries that Windows Backup will transfer to CD or DVD. The Additional Locations checkbox will copy items such as your contacts, Desktop, Internet Explorer Favorites, and Saved Games.

To search for and choose other files, double-click the OSDisk link and, if necessary, the second hard drive on your PC. Once you've selected all the folders and files you want to back up, click Next, and Windows Backup will generate a report that details what files and folders you opted to back up. Note that Windows Backup allows you to schedule your backups for a regular date and time. Click the Change Schedule button, and you can configure how and when the backups occur. You'll need to make sure that you have a writeable disc in the drive at the scheduled time. If you prefer not to run the backups on a schedule, remove the check from the Run Backup On A Schedule checkbox.

To start the backup process, click the Save Settings And Run Backup button. At the Back Up Or Restore Your Files window, you can watch the progress of the transfer. When it's done, you can remove the disc and label it. ∎

BY NATHAN LAKE
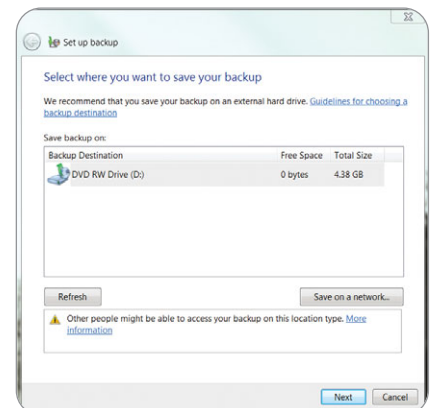
When you first configure Windows Backup, you'll be allowed to select where you want to copy your data.
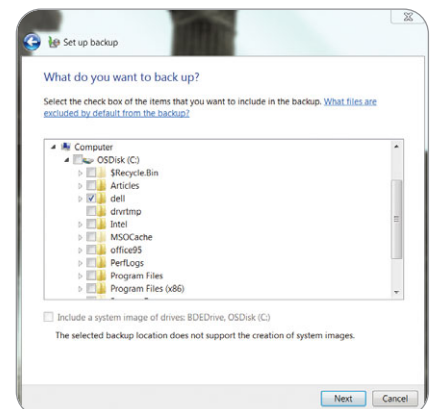
If you opt to choose which files are backed up, you'll make your selections at the What Do You Want To Back Up? window.

File Restoration

When you want to restore the files, just insert the disc, double-click the file with your username, and select Restore My Files From This Backup. You can click the Search, Browse For Files, or Browse For Folders buttons to find the files you want to copy back onto your PC.

Back Up To A USB Flash Drive

Temporary Storage For Important Data

In the digital age, backing up your data is essential. CDs, DVDs, and external hard drives are among your best options for long-term backup, but in a pinch, a USB flash drive will ensure that you have extra copies of important files should disaster strike. They're particularly handy when you're traveling light and need a temporary backup plan during your trip.

What's A Drive To Do?

Compared to the standard burnable CD or DVD, a USB drive is (physically) quite small. But when it comes to data storage capacity, the typical USB drive has a much larger capacity. Whereas a CD generally stores 700MB of data (and a DVD stores about 4.7GB), USB drives are commonly available in capacities up to 32GB, and some USB drives boast even higher capacities. USB drives give you plenty of room to save your important documents, music, and photo files.

To add these files to your flash drive, simply plug the drive into your computer's USB port, wait for the OS (operating system) to recognize it (a message may appear in your Taskbar's notification area), and click Open Folder To View Files Using Windows Explorer in the dialog box. Next, locate the folder from which you would like to move your files and click and drag them to the USB drive window.

Windows already has drivers for USB drives, so you won't need to install any when you plug the drive into your computer's USB port. And unlike some external hard drives, the USB flash drive doesn't require a separate power source.

Some models include built-in backup software, making it easy to back up data over the short term. For instance, security software may encrypt files and perform an ongoing backup process as you use your files (when the USB drive is plugged in).

Another obvious benefit of the USB drive is its portability. You can pocket it, attach it to a keychain, wear it on a lanyard, or toss it in your purse, and you won't damage the goods stored on your tiny flash drive. Of course, you want to avoid letting it slip under any heavy machinery,

The Lexar Echo ZE Backup Drive (www.lexar.com) is available in 8GB, 16GB, and 32GB capacities ($49.99, $89.99, and $139.99, respectively). The included software backs up and encrypts files without letting you overwrite or delete them.

but for the most part, it will withstand the daily bumps because it's not mechanically fragile.

In addition to quick backup and convenience, some USB flash drives can help speed up Windows Vista/7 operating systems. Both operating systems feature ReadyBoost, a Windows feature that uses flash memory to augment a slow computer. Windows takes advantage of the extra space on your USB drive to store temporary files.

A Few Buying Tips

Your purchasing decision will essentially boil down to three considerations: storage, protection, and design. Decide how many gigabytes you're going to need (this largely determines the cost). In terms of data protection, it's preferable that the drive include file encryption and backup software. USB drives also vary in shape, size, and external features. Some feature a swivel, others have retractable connectors, and some have connector caps. ∎

BY JOANNA SAFFORD

Back Up To An External Drive

Windows Backup Lets You Rest Easy

Personal computers play an important role in the personal and professional lives of many of us, so it's important that we have backup systems in place to protect our critical data. A strong backup regimen includes technology, storage, and planning. In this article, we'll show you how to use Windows Backup to manage the full system backup of your PC to an external hard drive.

Although online backup services such as Mozy (www.mozy.com) and Carbonite (www.carbonite.com) are popular options for PC users, backing up to an external hard drive offers speed, portability, and a pay-just-once approach vs. having to pay for a subscription and having your backup and restoration speed be determined by your ISP's (Internet service provider) connection speeds.

Scheduled backups mean you don't have to worry as much about remembering to back up, so you can focus on work or fun.

Set It & Forget It

We'll show you how to set up scheduled backups with Windows Backup. Scheduled backups mean you don't have to worry as much about remembering to back up, so you can focus on work or fun.

Step 1: Open the Windows 7 Backup And Restore Center. The Backup And Restore Center handles the running and management of your backups, including the Windows Backup feature. Click Start and then click Control Panel. The Control Panel displays a number of choices related to controlling and maintaining Windows. Choose System And Security and then click Backup And Restore.

Step 2: Set up and configure Windows Backup. Click Set Up Backup. The next window shows all of the drives in your PC (as well as the external drives connected to your PC). Select the drive that will store your backup. If you don't see your external hard drive in the list, double-check the drive's USB connection to your PC and make sure that the drive is powered on. Once you've selected the external hard drive, click Next. Another Set Up Backup window titled What Do You Want To Back Up? appears.

Microsoft recommends that you let Windows choose the files and folders for your backup routine. This option selects the folders in which you are likely to store documents, pictures, and videos. Click the Let Windows Choose radio button and then click Next.

Step 3: Review and set your backup settings. The next window lets you review your backup before you finalize the backup plan. If you selected the Let Windows Choose option on the previous window, the summary's Included In Backup window indicates that the default folders in Win7's Libraries will be backed up. You'll find that Windows is scheduled to back up these files at 7 p.m. every Sunday by default. Click the Change Schedule link to change the default backup time.

Once the How Often Do You Want To Back Up? window appears, you can manage the backup schedule. It's always best to run system backups when you aren't working at your PC because running a backup could interfere with your PC's performance. So choose a day and time when you typically aren't working at your PC. For example, many people run their backups overnight or, for home PCs, during the workday. When your schedule is ready, click the OK button.
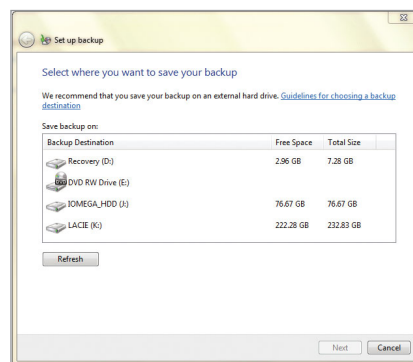
Choose an external hard drive from the list as a destination for your backup files.

Step 4: Save settings and run a backup. Now, it's time to back up. Click the Save Settings And Run Backup button to start the backup. It's always good to keep an eye on the start of your first backup to make sure everything is working.

Manage & Restore Your Backups

Running automatic backups of your PC takes some of the tedium from performing backups. However, just because you've automated your backups doesn't mean you shouldn't check on them occasionally.

When you return to the Backup And Restore Center after running your initial backup, you'll notice some changes to the interface. For one thing, the Backup section now displays information about your backup device and your backup schedule.

Click the Restore My Files button to launch the Restore Files window. You now have several ways to find files from your backup set. You can click the Search button to run a keyword search, or you can click one of the Browse buttons to look through backed-up files and folders yourself. If you are rebuilding your PC after a system crash, click the Browse For Folders button and restore the entire backup. If you're here because you accidentally deleted some files, browse for them in your backup and restore only the files you need. If you have more than one user account on your PC, you can also

Use the Backup And Restore window to get a picture of your current backup configuration or to initiate a new backup or restore of your files.

choose folders and files to restore by user account.

Another useful option (available on the main Backup And Restore menu) is the capability to restore files from another backup by clicking Select Another Backup To Restore Files From. Using this option enables you to restore files from older backups you have residing on your external hard drive. It's a lifesaver in situations such as when you're looking for a clean version of a corrupt Word document. You may have to go back a couple of backup versions to find a clean file.

There may also be cases where you want to run a backup on the spot and not wait for your regularly scheduled backup. Click the Backup Now button on the main Backup And Restore page.

Back Up Early & Often

The Win7 Backup And Restore Center provides you with all the tools you need to run full system backups on your PC. Combine those tools with a little bit of planning, and you can put a backup regimen in place that can help protect your work and spare you much grief and frustration when you run into PC problems. ▮▮

by **Will Kelly**

Determine how often you want to back up your files, based on your work schedule and comfort zone.

Choose An External Hard Drive

There is a dizzying array of external hard drives available on the market. At a basic level, they work just like an internal hard drive when you attach one to your PC. External hard drives from well-known data storage vendors, such as Western Digital and Iomega (now part of EMC [www.emc.com]), typically retail for around $150.

When shopping for an external hard drive, consider the following:

- Does the drive have enough capacity for data you want to back up? Look for a drive that has two or three times the storage of the data files you want to back up so that the drive can accommodate new files as you create them.
- What type of connector does the drive use? Most drives have a USB 2.0 connector (a type of connector that can be found on all modern PCs), but some require other types of ports, such as FireWire ports.
- Does the drive require a separate power source? Portable hard drives (which are targeted at notebook users) often draw power directly from the notebook's USB port. But larger hard drives include a power adapter that you'll need to plug into a power outlet in your home or office.

Start by doing some research online. Once you find some drives that meet your requirements, check to see whether you can get the best price online or at your local brick-and-mortar store. ▮

Back Up To The Cloud

Protect Your Office's Critical Data

Whether you've learned from experience or by hearing of someone else's misfortune, you know how important it is to back up your data. Although hardware storage devices (such as portable hard drives) can create an extra copy of files, they are susceptible to physical damage and can be easily lost. When your files are backed up using a cloud-based service, you can be sure they won't be misplaced or lost in a fire or flood. They are particularly useful for small offices that need offsite storage for backups.

Cloud services use the Web to transfer your files to a data center in a different geographic location. An Internet connection and a computer are all you need to retrieve your data. Accounts are available at a variety of price points, and generally the rates are tied to how much

capacity is offered by the service. Many will offer a small amount of space free, however. For example, SpiderOak (www.spideroak.com) offers 2GB of free storage space and charges $10 per month for every additional 100GB of data you upload. SpiderOak also offers typical online backup features, such as automatic backup scheduling and the ability to share files with others.

To give you a better idea of how online services work, we'll show you how to set up an account, back up your data, and use other features available to you in SpiderOak.

Get Started

Although SpiderOak saves your files to the Web, you control your account preferences and backups from a client you download to your computer. To download the program from the SpiderOak home page, click the

Download button in the middle of the page and then click the arrow pointing down in the middle of the download page. Click Save. You will then need to click Run both times it appears. To start the installation wizard, choose Next and then agree to the license agreement. To add SpiderOak to the Program Files folder on your computer, click Next (or choose a different destination and click Next) and then Install. Click Next when the installation is complete and then choose Run SpiderOak Now. Select Finish. The program is now on your computer.

Once the program is installed, the setup process will begin. After you've read the Welcome pop-up box that appears after installation, click Next. Select Create A SpiderOak Account and then choose Next. In the corresponding text fields, enter the information you want to use for your new account. Click the box to select the password policy and then click Next. Enter the security text into the corresponding text field, and then select Next. Read the information in the pop-up box stating that your setup process is complete and then click Finish. You will then get an email from SpiderOak to verify your account. Once you click the link provided in the email, you're ready to start backing up your information.

Begin Your Backup

To start backing up your files, select the Backup tab in the SpiderOak program. From here, you can choose the types of files you want to back up. As you select the categories, the storage bar at the bottom of the page tracks the amount of storage it will require and categorizes the type of content (documents, desktop, movies, photos, or pictures) by color. If you need additional storage, click the Buy More Space button. When you are done, click the Start Backup button.

If you want to be selective about which files are sent to your online

Tech Support
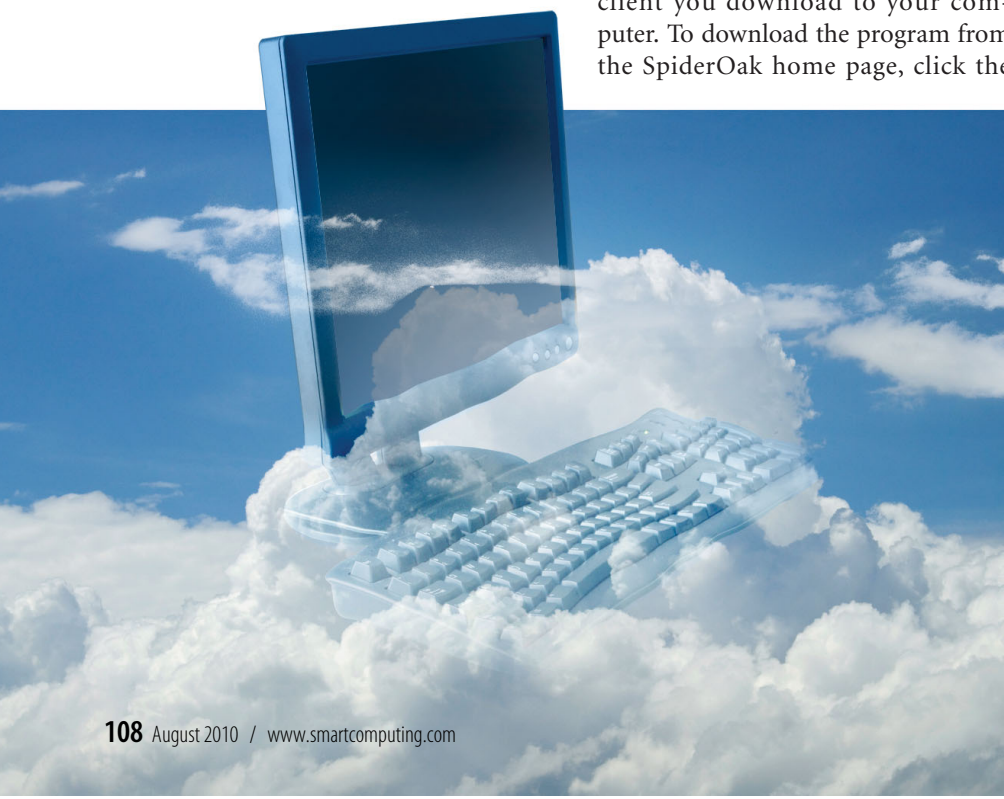
SpiderOak account, click the Advanced button in the top-right corner. Here, you'll find a detailed list of your files so you can choose which ones to upload to SpiderOak. Select the file by checking the corresponding box. Click the Save button when you are ready to start your backup. Note that SpiderOak will not save your advanced settings if you decide to go back and choose from the basic menu.

You can view the status of your backup under the Status tab. The initial backup process could take several minutes or hours, depending on how much data you are uploading. Your subsequent backups won't take nearly as long as your first one because Spider-Oak will upload only new or modified files, rather than upload all of them each time.

To set or modify your backup schedule, click the Change button located under the Back Up activity log. Here, you'll have the option of not only changing your backup frequency and time of day, but you can also modify your sync and share preferences.

Sync & Share

If you want to back up multiple computers (or a hardware storage device, such as a portable hard drive), SpiderOak can sync your data so all your files are accounted for and there are no duplicates. It also supports multiple operating systems (in case you have a Windows computer at work and a Mac at home, for example). Note that you have to download the Spider-Oak program on each computer you want to sync, but you will use the same account information. When you download the program to a new computer, use the aforementioned instructions but select the option for entering your current account information when prompted.

To sync folders with your SpiderOak account, click the Sync tab and then

select the New button. Enter a name and description for the sync process so you can remember the details of the sync if you choose and then select the two folders you want to sync using the Browse button. Click Next. You now have the option of excluding items by typing the file types (such as JPG) into
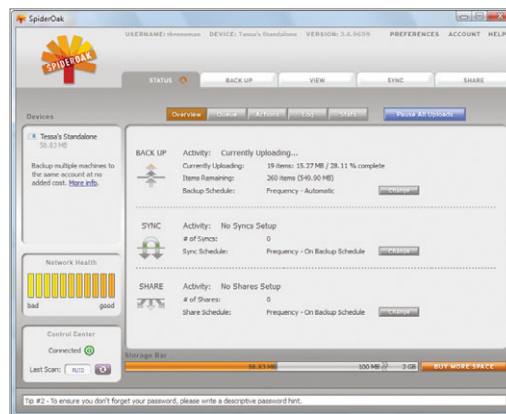
You can manage your backups, and sync and share files, from your SpiderOak dashboard.
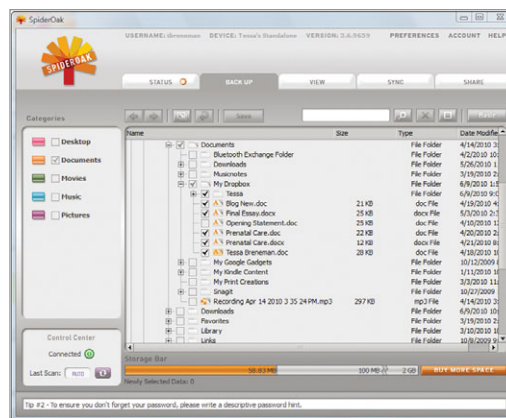
You can pick and choose the files you want to back up using the Advanced menu under the Back Up tab.

the box provided. Click Next to review your selections, and then choose Start Sync.

You have the option of sharing specific files with family, friends, or colleagues. To create a ShareRoom, or a shared space in your SpiderOak account, click the Share tab and choose a ShareID username, which will be made public. Others will use the ShareID name to log in to your shared

space. Click Finish. When you are brought back to the Share tab, click the New button. Enter a title for your new ShareRoom and then choose a RoomKey (a password that will permit access to your shared files when it's entered along with your ShareID). Each ShareRoom will have a unique RoomKey, so individuals will only have access to the folders you make public to them and not the ones you make public to others.

Next, you'll have the option of entering a description for your shared files. Once you've finished doing so, click Next. To select files and documents to share, click the Browse button and choose the files or folder from the list of backed up items. If you want to choose multiple files or folders, click the green button with the plus sign (+). To remove items, select the red button with the minus sign (-). Click Next. Finally, review your choices to ensure you've selected the right folder and then click Start Share.

Accessing Your Files Online

Whether you need to find a single file or restore all your files to a new computer, you can access your collection of backed up data from the SpiderOak Web site. From the home page, select the My Login link and then enter your username and password. From here you will be able to view the files you have backed up and stored in your SpiderOak account. If you need to restore files or folders to your computer, click the Download button adjacent to the data you want to download to your computer.

SpiderOak is one of many cloud-based backup solutions. Be proactive and find a cloud-based solution that will work for you, because if you wait until you need a backup of your files it's already too late. ▮

BY TESSA WARNER BRENEMAN

Smart Computing / August 2010 **109**

Configure A NAS Device

Network-Attached Storage

Intel co-founder Gordon Moore postulated in 1965 that computing power would double every two years. His prediction, popularly known as Moore's Law, has proven amazingly prescient. In 1971, the Intel 4004 processor had 2,300 transistors; in 2010, Intel released the Itanium 9300 processor with 2 billion transistors.

As processing power has increased, the need for storage has also increased. Much of our personal storage needs have been driven by greater access to higher-quality digital media. Not too long ago, we stored movies, photos, and music on tapes, discs, and paper. Today, many of us store all of these things on our computers. While we might have once gone to a local retailer to buy or rent video games, today we often download them from online game providers.

As we store more of our entertainment media in digital format, our storage needs have increased. While megabytes of storage were once considered adequate, today we require gigabytes and sometimes terabytes. While DVDs, with a capacity of about 4.7GB (gigabytes), were once considered high quality, now BD (Blu-ray

Disc), with a 50GB capacity, is considered the high-quality video standard.

As our usage and desire for higher-quality media increases and more of that media is available for download, our need for storage increases, too. NAS (network-attached storage) is one of the ways storage companies are addressing this need.

What Is NAS?

As the name implies, NAS is a storage device attached to a network. In the early days of networking, the role of NAS was usually filled by a separate computer, a file server. These days, though, the role of a file server has mostly been subsumed by NAS, which is typically little more than a large storage device that has one or more hard drives and either a separate or integrated networking component. Any computer on the network can access the documents, photos, videos, music, and other files that you store on the NAS device.

Due to high costs, NAS was once a product marketed primarily to businesses, but in recent years, as storage prices have dropped and home networks have become more common, NAS has become a viable product for the home and home office market. Today, many storage companies (such as Data Robotics, Seagate, and Iomega) offer NAS solutions for the home market. Prices vary, but several

companies offer NAS with 1TB (terabyte) of storage for about $200.

Why Would You Want NAS?

If you have several computers in your home and they have access to your home network, NAS has several advantages:

- It provides centralized storage, so anything stored on the NAS device can be accessed easily by other computers and devices (for example, a network-ready Blu-ray player) on the network. All of your movies and music can be stored on the NAS for easy playback on any computer in the house.
- NAS devices can be easily added to the home network. As long as network ports are available on your router, you can add more NAS devices to your network.
- NAS provides an easy means to centralize your backups. No need for tapes or CDs or DVDs; just schedule the backups to your NAS device.

Your Home Network

To use a NAS, you need a network. If you have broadband Internet access,

The Iomega Home Media Network Hard Drive connects to your network router instead of connecting directly to a computer. This approach makes your files available even when a PC is powered off.

Tech Support

Making all of your data available to everyone on the network might not be ideal, so the Iomega Home Media Network Hard Drive lets you lock down important folders.

you can create a network by adding a router, which is the backbone of most home networks. You can plug any network-ready device into that router, including your new NAS. We'll show you how to set up and configure a typical NAS device.

Easy Setup

We use an Iomega Home Media Network Hard Drive (www.iomega .com) for this example, but you'll find that the steps are similar. The Iomega Home Media Network Hard Drive is available in 1TB and 2TB versions. The 1TB version is available for $199; the 2TB version is $299. The 1TB unit has one USB port (letting you connect it directly to your computer) and a 1-gigabit Ethernet port (which lets you connect it to the network). It is DLNA (Digital Live Network Alliance; a media-sharing standard)- and iTunes-compatible.

As with many NAS devices, the Home Media Network Hard Drive can serve as a media server, delivering video, music, and pictures to computers, game consoles, DVD players, and anything

NAS devices function much as external hard drives do. Once a NAS device is attached to the network, you can open it from your PC and browse its folders and files as you would with an external drive.

else capable of receiving media. It can function as an iTunes server. It also includes software to provide backup and data recovery for the PCs on your network.

In short, it is a centralized device for all your digital media and backup needs.

Set Up The NAS Device

Setting up the Home Media Network Hard Drive on your home network is fairly simple. The first step is to connect the Ethernet cable to your router. On the back of the router are several ports. One of the connections is for the cable that leads to your broadband modem; the other connections are Ethernet ports for additional computers and devices, such as the NAS device. The router will usually have four to six ports for your devices. Plug the provided Ethernet cable into one of the available ports on the router. Then, plug the other end of the cable into the NAS. Plug the power supply into the NAS, then into an available electrical outlet. In the case of the Home Media Network Hard Drive, it will power up automatically once you plug it in.

It really is that easy. The NAS does all the hard work. Its networking logic sets itself up on your home network, and it is ready for use right away.

The NAS will appear as a new device on your home network. The unit in our sample network appeared as IOMEGA-FAA351. To check your home network,

click Start and then select Network from the menu. If Network is not an option on your main menu, you can get to it through the Control Panel: Click Start, Control Panel, and Network And Sharing Center. From the left menu, select View Computers And Devices.

If the NAS device does not appear on your network, be sure you have Network Discovery turned on: Click Start, Control Panel, and Network And Sharing Center. If Network Discovery is off, click On.

After installing the device, install the Iomega software on the CD included with the device.

Use The NAS Device

Using the NAS device is almost as easy as setting it up. The Iomega NAS comes with preconfigured folders for your backups, music, photos, and movies. Simply store the appropriate media in the appropriate folder (for example, videos in the Movies folder) and you can access them from any computer. Actually, this is only important for the Music and Movies folders, as these folders are preconfigured for their respective media. The Music folder expects iTunes-compliant media, and the Movies folder is configured for DLNA-compliant media. The other folders (Backups, Public, Photos, and Active Folders) are not preconfigured for any particular media and can handle any type of file.

At this point, you're ready to load your files onto the device and share them with your network's computers and devices.

Final Thoughts

Storage needs are going to skyrocket over the coming years as home networks become more prevalent and more network-ready devices enter the home. You prepare for future storage needs) by installing a NAS device to your home network. ▮

BY RON KEITH
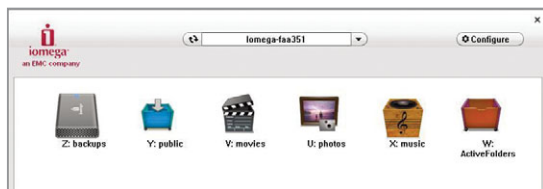
Troubleshoot Data Backup Problems

Get Your Backup Back Up

Today's backup systems are far more convenient than they were even a few years ago, when you had to deal with stacks of floppy diskettes or complex hard drive connections. But backup systems still make many users worry about the hassle factor because they involve hardware connections and jargon. The following tips will help you navigate some of the most common headaches that arise when keeping your data safe.

Problem: I don't have the budget or tech knowledge to deal with a backup system.

Solution: We could get preachy and ask what it will do to your budget if you lose all your data. But instead, we'll point out that you can save your money and use Windows' built-in backup utility found in the System & Security section of the Control Panel. And a decent utilities suite (typically about $50 to $100) will include a good backup utility.

If you purchase an external hard drive, you'll probably find that it comes with its own backup utility. Think you can't afford an external hard drive? For around $100, you can get a drive that probably holds a lot

more than your computer's drive. Think they're too hard to use? Many drives connect via a USB cable, meaning they're no harder to use than your digital camera.

Problem: I've been faithfully using Windows' backup program, but now I can't find my backup DVDs.

Solution: This is a good argument for following a common IT protocol: Keep a backup of every backup. In the normal routine, you'll insert your discs and let Windows' backup utility update discs with any data that's changed since your last backup. But if you've lost your backup media, you'll need to start over with a fresh backup. It costs you a little extra time, but isn't a huge

deal otherwise. In the left pane of the backup window, click Create New, Full Backup.

Problem: I back up data each week, but I need to retrieve a file from a month ago, before I made several changes to it. This means the copy of the file on my latest backup disc isn't what I need.

Solution: Windows' Previous Versions feature addresses exactly this issue. Previous Versions saves multiple "point-in-time" versions of a file, so you can review several versions of a file and choose the one you want to restore. It's working behind the scenes all the time, even if you don't have a backup system in place. Or if you do run regular backups, Previous Versions can access a file from a point in time older than the one saved on your most recent backup. This also works for folders, so you can restore a folder structure that existed in the past.

To review Previous Versions of files, open the Computer window, right-click the folder where the file is (or was), and choose Restore Previous Versions. When you find the file, drag it to a new location to save it there (if
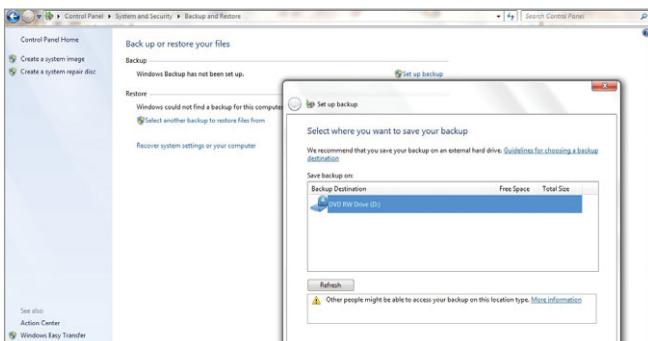
Is your data going unprotected because you think you don't own a backup utility? Actually, you do, thanks to the utility built into Windows itself.
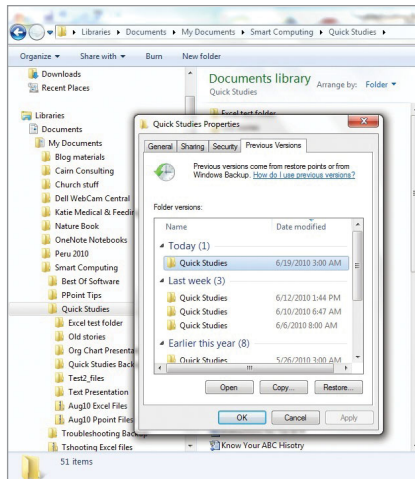
Windows' Previous Versions feature takes regular snapshots of your folders, letting you easily restore the data as it looked at a particular point in time.

you get a security warning, click OK). Or you can click the older version of the file and click Restore to save it to its original location. Note that this copies over whatever version of the file currently exists on that drive.

Problem: I'm counting on my regular backups to save me if my entire computer crashes. Am I on thin ice?

Solution: That depends. People typically rely on Windows' backup utility to save only data files that have changed since the last backup. But Windows can save an entire system image, letting you restore critical details such as programs, driver settings, and Windows itself. (Look under Backup And Restore, Create A System Image.) This only happens, though, if you're backing up onto a drive with enough space for all that info. In other words, if you're backing up onto something such as flash drives, you can assume the utility isn't capturing the info for a full system restore.

Problem: I saved money by setting up a separate partition on my hard drive for backups, rather than buying a new external hard drive. But now I'm wondering how safe this is.

Solution: It's not very safe. A partition on your main hard drive (which would be labeled as a totally separate drive in Windows) may actually survive problems that plague the main area of your hard drive. But if the drive fails completely, you're in trouble. And, of course, you're out of luck if your computer is stolen or destroyed. And if the main drive area holding Windows gets corrupted, you won't be able to run the utility and access your data partition. The best bet: Back up data onto storage media you keep in a place away from the computer.

Problem: My computer hasn't been running right since I installed a new program, so I'm thinking of using my backup discs to reinstall everything.

Solution: Before taking that drastic step, first try using the troubleshooters in Windows' Control Panel to fix the specific problem you're having (see our answer to the next question). If that doesn't work, use Control Panel's System Restore tool to undo recent system changes and hopefully reset your computer to its condition before the problem started. Click System And Security and look in the Action Center.

Problem: My backup utility doesn't recognize my DVD drive.

Solution: If you're sure it's a *writeable* drive (backup software can't use read-only drives), then it's probably a problem involving more than just your backup software. Use Windows' built-in troubleshooter to diagnose and fix this kind of hardware trouble. To start it, click the Start button and choose Control Panel. Under System And Security, click Find And Fix Problems. Under Hardware And Sound, click Configure A Device.

Problem: I travel frequently with my notebook computer, so backup discs at the office aren't much good if my computer goes haywire on the road.

Solution: Try looking into the many online backup services that let you store data on remote servers via the Internet, ensuring you can get to your data from wherever you find a Web connection. Even if you work on a desktop PC, online backup is worth a look because your information is far safer in a professional data center than on DVDs stored in a closet in the same building as your computer. Many of these services could meet your data storage needs for about $30 per year, maybe less. Search for options online, check out services from the major utility makers, and take a look at Microsoft's free SkyDrive service.

Problem: I just started a backup system, and it's really slow. Is it always this tedious?

Solution: Typically, no. Your first backup involves saving a baseline copy of all the existing data. Future backups will copy only data that's changed since the last backup, so it should run much faster.

Problem: I'm not sure how often I should set my automatic backup to occur.

Solution: This depends on how you work with your PC. Data experts answer this question by thinking in terms of how much work you can afford to lose. If it's a computer you work on every day, a nightly backup is probably in order. For a home computer you use less often or use mainly for browsing the Web, a weekly backup may be enough. If you're using an automatic backup to a permanently connected device, there's no more effort involved in backing up every day, so play it safe and grab that data every night. ▌▌

BY TREVOR MEERS
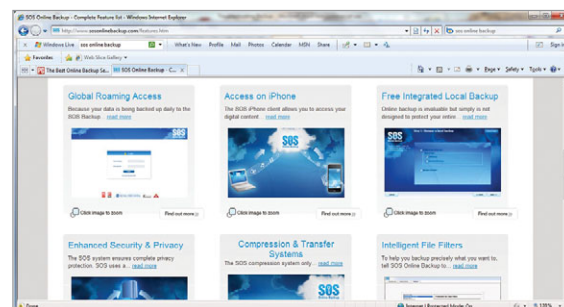
Online backup services such as SOS offer an inexpensive way to copy your files to a secure location that you can reach from anywhere—and is safe even if your home/office is destroyed or burglarized.

What To Do When

Your Backup Restoration Fails

You thought ahead and made a full system backup of your hard drive. Sure enough, the PC's hard drive eventually gave out, and now you need to restore that data to a replacement drive. Unfortunately, the transfer isn't going as it should. Here, we'll cover how you can overcome common system restoration issues.

Hard Drive Detection Trouble

Most backup and restoration programs require that the target hard drive (the drive to which you plan to restore the data) have an MBR (master boot record) or a GPT (GUID [global unique identifier] partition table). These are types of markers that show the PC what portions of the hard drive the system should read when the PC boots up. (They also show where the OS [operating system] is stored.) Typically, new drives aren't initialized with either an MBR or a GPT, and you'll need to run a bootup application to set up the drive.

With most third-party restoration applications, you can insert the rescue media and it will start the preboot application. For example, with ABSplus Rescue from CMS (www.cms.com), you'll need to insert the ABSplus Rescue CD into your disc drive and press the key that starts the BIOS (Basic Input/Output System). Typically, that key is the DELETE or F2 key. If those keys don't do the trick, watch the screen during startup for instructions (or consult your computer's manual).

When the BIOS opens, change the boot order so that the PC boots from the CD/DVD drive and select Save And Exit. When restarted, CMS loads its installation application, during which you can select the hard drive and backup copy you want to install. Once done, CMS ABSplus Rescue installs the partition records and begins transferring your backup to the new hard drive.

If you use Windows' built-in system backup tools, you'll need to insert your backup media and press F8 to load the System Recovery interface. At the Advanced Boot Options screen, use your arrow keys to highlight Repair Your Computer and press ENTER. Click Next, enter a username and password, and click OK. Select System Image Recovery and follow the on-screen instructions to restore your copy of Windows.

Recover Specific Files

Your full system backup didn't transfer all the files you wanted, but all is not lost. Most system backup applications provide a way to recover specific files or folders from a complete backup, so you can still recover key photos, music, and email. The file-level restore also comes in handy if you've installed new applications and created new files since your last backup and only want to rescue a few files that were accidentally deleted. Many third-party restoration tools allow you to mount an image of your backup files, where you can search through the folders using Windows Explorer to recover the files you need.

To rescue specific files from Windows Backup in Windows 7, click the Start button, select Control Panel, choose System And Security, and click Backup And Restore. Under the Restore section, click the Restore My Files button and select Browse For Files or Browse For Folders, depending on which option suits you best. Then, you can double-click the disc drive (or another drive, if you've opted to use a different form of external storage) and drill down to find the files or folders you want to restore. Select the files and folders, then right-click any of them and click Copy. Next, open a folder on your new hard drive, right-click anywhere in the folder, and click Paste. Your files will copy to the new drive. ▌

BY NATHAN LAKE

Quick Fixes

Slow or failed restorations from external hard drives can often be fixed by examining the connections to the external drive and PC. Try unplugging and firmly reattaching the USB or FireWire connector. It's also best to avoid connecting an external hard drive to a USB hub or through another FireWire device because it can cause conflicts or prevent the transfer from occurring as fast as it could. ▌

Convert Old Videos To Digital

Today's Tools Make It An Easy Job

Time was when VHS tape seemed a technological wonder. Although marginally inferior to Sony's earlier Betamax format, the newer format ultimately captured the market, and VHS tapes documented every aspect of our lives: From a young boy's first steps to his high school graduation, and from a little girl's first underhand lob at a basketball hoop to the celebration after winning the state championship, it all ended up on tape.

VHS captured the world—or at least the parts of it that mattered most to us. It was a magnetic miracle.

But now that miracle has lost its luster, and our VHS cassettes are piled in the closet, deteriorating slowly, silently, and surely. Magnetic tape, after all, ages: It stretches, becomes brittle, breaks, and tears; the same head that reads the data from the tape also degrades the tape just a little bit, every single time it plays. Generally, the life of a magnetic tape can be measured in years or, at most, in decades.

It's time to convert those VHS tapes to digital formats before we lose all of those memories. It may seem like a monumental task, but it needn't be daunting; we'll show you how it's done.

The Basics

At its core, the conversion is simple. You'll need four things:
1. A VCR or video camera to play the tape and provide analog output.
2. A capture or input device that connects to both the VCR and your computer, and which captures and converts the video output by the VCR or camera. Most such devices are small units that connect to your computer's USB ports, although some capture cards are mounted inside a desktop computer. There are also standalone devices that don't connect to a computer at all.
3. Software to edit the video you've just captured. Editing is not absolutely necessary, of course, but it's nice to be able to eliminate dead space and bad shots.
4. Finally, you'll need software and hardware to burn the newly captured and edited digital movie to a CD, DVD, or other medium.

The Tools

Generally, all you need for this sort of task is a product that contains a capture device, a set of connecting cables, and a CD that includes drivers for the device and software to allow you to capture and edit the video. Two popular such tools are Pinnacle's Dazzle DVD Recorder Plus ($49.99; www.pinnacle.com) and Honestech's VHS To

Honestech's VHS To DVD 4.0 Plus includes software, cables, and a small video capture unit.

DVD 4.0 Plus ($49.95; www.honestech.com). These two are good examples of the genre: affordable, simple, easy to use, and representative of how this sort of conversion utility works. We'll be using these to illustrate some specifics of the conversion process.

If you intend to convert dozens of tapes, consider investing in a standalone conversion unit, such as Sony's DVDirect DVD Recorder ($199.99 to $299.99; www.sonystyle.com), to simplify and largely automate the conversion process. With these devices, you don't even need a computer: Just connect your VCR or other playback device to the unit, drop in a DVD, press a button, and go have lunch; when you come back, your videotape will have been transferred to DVD. (You might want to make it a long lunch. Go ahead, dawdle a bit.)

Most of us, however, would rather spend $50 than $200 or $300 and are willing to participate more actively in the conversion process. We'll proceed from that assumption.

The Process

If you're using a tool such as DVD Recorder Plus or VHS To DVD Plus, you'll be pleasantly surprised at the nonthreatening simplicity of the package contents: a small video capture device, a cable, and a CD. In most cases,

there's not even much of a manual; the process is simple enough not to require anything more than a Quick Start guide and some on-screen instructions.

Setup. First, install the software. Do *not* connect the video capture device until after you've installed the software, unless the instructions specifically say to do so. The CD will install drivers for the capture device, as well as applications to facilitate the capture; edit the resulting video; and burn your creation to CD, DVD, or other media.

Once the software is installed, you can connect the capture device to your computer: If necessary, plug the cable's mini-USB jack into the device (some, such as Pinnacle's, are already connected); then, insert the full-sized end of the USB cable into a USB port on your computer.

To connect the camera or VCR to the capture device, use three RCA jack connector cables (usually colored yellow, red, and white, and normally not included in the package); connect these to the three output connectors on the device (also colored yellow, red, and white). The yellow-tipped cable is for video, and the red and white ones are for right and left audio. (Some capture devices also offer an S-Video connection, which does away with the three RCA cables.

If you have the option, use S-Video; the quality is somewhat better, there are fewer cables to worry about, and some software can use S-Video to control your camera or VCR.)

From here, you'll go through three steps to convert your video: capture, edit, and burn.

Capture. Both the Pinnacle and Honestech products offer multiple capture alternatives, including an option that copies the entire tape directly to disc: Put a DVD in the computer, turn on the playback, click the button, and go.

If you'd like to exercise more control over the capture and editing processes, select a source (VCR, disc, file, etc.), start the video playback, and click the application's Capture button; the video playback will display in a Preview window as it's captured. You can stop the tape at any time if there are sections you would like to skip, or you can edit those out later.

Edit. Different applications provide different editing tools, but all allow you to clip or cut sections and add audio, titles, and transitions. Generally the resultant "project" displays as either a Timeline or a Storyboard at the bottom of the screen. You can drag video and audio clips and drop them into specific places in the flow of the video project.

It's not absolutely necessary to create menus and chapters for your DVD, but doing so makes it easier to navigate and much more professional-looking. Some applications (such as Pinnacle's Dazzle DVD Recorder Plus) offer menu-creation options as part of their editing tools, while others list them elsewhere or give them their own section or tab.

Burn. Now that you have captured and edited your video, it's time to burn it to disc or to another medium. This is often as simple as inserting a DVD in your drive and clicking the Burn Disc, Make Movie, or similar button. In some cases, though, you'll also select from among various quality settings and file formats: QuickTime, Flash video, Windows Media Video, and others. (Keep in mind that selecting higher-quality settings will result in larger video files; if you have hours of video and you select the highest-quality rendering options, eventually your project may exceed the 4.7GB available on the typical writeable DVD.) DVD Recorder Plus and VHS To DVD 4.0 Plus both also allow you to save your video in formats compatible with portable devices, such as Apple's iPod/iPad or Sony's PlayStation Portable.

Once you've decided on your output quality settings and your target type (DVD, CD, iPod, etc.), click the Burn or Make Movie button. It can take many minutes to create and burn a lengthy video, so be patient. Generally, the application displays a progress bar showing you how far along you are and how much time remains before your video will be finished.

Preserving Memories

Those videotaped moments mean a lot to you; it would be a shame to lose even one of them. With an investment of a few bucks and a few hours, you can ensure that your recorded memories remain available to you and your family for years to come. ∥

Connecting Your VCR Or Video Camera To A PC

BY ROD SCHER
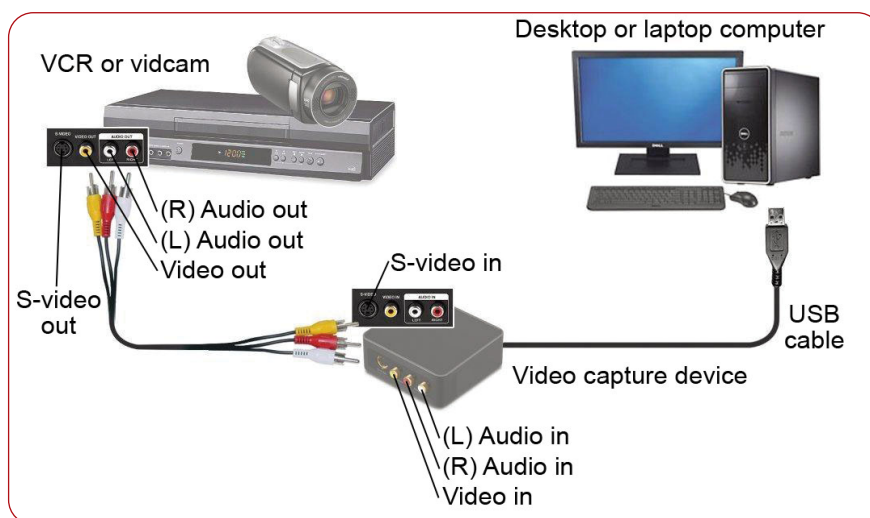
Set Up A New PC

The How-To Manual
For Computer Construction

Checking off the word "computer" on your list of electronics to buy can feel really great. However, learning how to set up the PC for the first time may not spark the same enthusiasm, unless you're prepared for this small (but sometimes a little complicated) project. No matter what combination of desktop components you purchase (a desktop package or separate tower and monitor), there's always some effort required to set up a PC correctly. If you follow our instructions, not only will you be able to identify the components, but you'll also know what they do and how to organize them.

Identify The Hardware

Understanding all of your computer's components will help the setup proceed smoothly. We'll list each component and describe its major features.

Tower. The tower, also known as the case, is an enclosure that houses all the internal components. Within the tower are the following primary components: the motherboard, processor, power supply unit, hard drive(s), optical drive, RAM, and ventilation system. External components connect to the motherboard via the I/O (input/output) ports on the rear of the tower.

Monitor. The LCD monitor consists of a flat display supported by a neck and a base. Some models are adjustable and swivel or move up and down to accommodate your preferred viewing position. Most monitors also feature contrast, brightness, and other display settings buttons.

Keyboard. A full-sized keyboard has a QWERTY key set with numbers lining the top row. Most keyboards also feature a numerical pad, or a modified version of one, typically stationed to the right of the Arrow keys. This peripheral can be wired or wireless.

Mouse. Appropriately named after its rodent doppelganger, the dome-shaped mouse is either attached to your PC via USB cable or connected wirelessly. The palm of your hand should cup the mouse comfortably, so you can move it effortlessly around your mousepad.

Cables. If you purchase a desktop package, all the cables required to connect your peripheral devices to your tower should be included. Be sure to consult the manufacturer's instruction manual to compare all of your cables to what's listed in the included parts section. Generally, printer cables are not included with a printer, so they will be a separate purchase.

Speakers. Computer speakers are necessary if your PC tower doesn't include a built-in sound system. But, regardless of what model of computer you have, adding a set of speakers will enhance your audio experience when you're computing.

Printer. Printers are primarily available as inkjet, laser, or photo models. An all-in-one printer combines the printer, scanner, and fax capabilities into a single machine. In some cases, retailers or manufacturers include a free or discounted printer with a desktop PC purchase.

Extra hardware. Extras could include tertiary peripherals such as a standalone scanner, Web cam, or external hard drive (whether portable or stationary). Depending on the size of these items, you may need to clear additional space for them to fit in your workspace.

Inspect, Prep, Plant

Setting up a new PC is not unlike searching for the perfect plot of land: The workspace, like the real estate, should be an ideal space, level, and away from hazards. One way to ensure that you'll be comfortable when you're using your computer is to invest in a durable computer desk. Designed for providing enough space for each peripheral (plus

A standard midtower desktop package looks similar to this Lenovo ThinkCentre M58p (starts at $956; www.lenovo.com).

some desk trinkets), computer desks are typically built with a large, flat workspace and sometimes include cable management features to keep cords behind the desk away from your feet.

Wherever you decide to station your computer desk, be sure to park it near a cable jack and a wall outlet. This way, you can easily connect high-speed Internet from the cable outlet to a modem or wireless router, which is then connected to your PC via Ethernet cable. If you don't already own a surge protector, invest in one for your new PC. After setup, you will plug all power cables for every corresponding component into the surge protector in order to protect against power surges and lightning strikes.

When you complete these preparations, you can start unpacking and unwrapping your new computer. Always start by reading the manufacturer's instruction manual or the quick setup guide (which simplifies assembly), so you don't overlook any specific warning or direction. Most computer systems come packaged in foam or cushioned casing to prevent damage during shipping. As you remove each part, be aware of any packaging pieces that may detach, so you can more easily extricate the PC from the box. Pull out large items first, if possible, and do so gingerly.

Almost all motherboards include I/O (input/output) ports that are exposed on the back of the PC tower. You will plug all of your peripherals into this panel as you set up the PC.

Ergonomics, the science behind proper equipment construction and use, will help prevent discomfort and fatigue when using your new computer. An ergonomic mouse, such as the Microsoft Wireless Laser Mouse 5000 ($49.95; www.microsoft.com), helps keep your hand in a natural position.

When every component is completely out of the shipping box, you are ready to assemble the PC at your workspace.

Plugs & Ports

It's essential that you position your desktop components in a way that suits you ergonomically. In other words, you don't want to crane your neck awkwardly to look at your monitor, and your arms should not extend beyond a 90-degree angle. To make sure you're computing with the correct posture, use the Computer Workstation tools and checklists made available by the U.S. Department of Labor at tinyurl.com /27sxo78. When you feel comfortable about where you've placed each component, it's time to plug in cables.

A wired mouse and keyboard include cables with USB 2.0 connectors on the end. You will plug the connectors into any USB 2.0 ports available on the rear panel of your tower. Most computers come equipped with at least two or four USB ports. The connector should fit snugly into the port. If you're installing a wireless mouse or keyboard, each peripheral should include a wireless receiver that plugs into a USB port.

Next, connect the monitor to the I/O port. There are two standard ports for monitors: VGA (Video Graphics Array) and HDMI (High-Definition

Multimedia Interface). The VGA connector is equipped with two screws that will secure the connector to its port. Alternatively, the HDMI connector plugs into its appropriate port as is. The monitor also includes a power cable; with one end of the cable attached to the monitor, plug the power cable into the surge protector.

Your set of speakers plugs into the line-out jack, which is almost always color-coded light green. Connect the speakers' power cable to the surge protector next. Items such as printers, scanners, and external hard drives usually feature one or two USB cables and a power cable. Plug the USB cables into any available ports on the tower. If all the USB ports are occupied, you can expand your port options with a USB hub, such as the Aluratek 4-Port USB 2.0 Hub ($14.99; www.aluratek.com). Now, plug each hardware item into the surge protector, as needed.

Lastly, the PC power supply cable must be connected. Insert the triangular end of the cable into the triple-pronged port on the rear of the power supply unit. Then, plug the other end into your surge protector. Double-check all of your connections to make sure they're snug. If the surge protector features an On/Off switch, switch it to the On position. Now, you can press the Power button on your PC tower, usually located at the front or top of the case. Don't forget to press the monitor's Power button, as well, or you won't see any images on the display.

Another First

When you boot up the PC for the first time, you will encounter a series of startup wizards and applications that will walk you through how to set your administrative settings (create a username), configure your network, and choose your operating system security options. ▐▌

BY JOANNA SAFFORD

Set Up A New Camcorder

Seven Easy Steps To Digital Recording

You're the proud owner of a new digital camcorder. Before you start recording precious memories, however, you must set up your camcorder. Instead of poring over a hefty owners manual, we invite you to take advantage of our quick step-by-step guide. You'll need to refer to the owners manual for specifics, but these basic steps will get you started in a flash.

Step 1: Charge the battery. In what is perhaps the most frustrating step in setting up a camcorder—most of us can't wait to start playing with our new toys—you'll need to charge the battery. This process can take up to several hours. Before charging the battery, be sure to remove any plastic packaging from the battery. Insert the battery into the camcorder. Next, plug the power cord into a wall outlet. Finally, plug the power cable into the camcorder's power port (typically near the back of the camcorder). Although status lights vary on cameras, you'll probably find a light that flashes (or that glows a solid color). Let the camera charge until the flashing stops or the color changes.

Step 2: Configure video settings. Take a moment or two to learn about the various video settings options. You may be able to adjust the screen's **aspect ratio**, which is the ratio of the video's width to its height. (Your desired aspect ratio will depend on how and where you plan to view the recorded video.) Other options may include zooming capabilities, high-definition video options, or night-recording features.

Step 3: Configure audio settings. It's easy to focus on what you're seeing and forget about what you're hearing, but remember that your camcorder's audio is important. Find out where the microphone is and give your camcorder an audio test, if there is one. Or, simply record a short clip and play back the footage to make sure the camcorder captured the audio. Also, keep in mind that you likely will be able to choose between two main audio settings: 12-bit and 16-bit. In most cases, you'll want to stick with 16-bit because it produces a higher-quality sound.

Windows may give you a list of options for uploading video from your camcorder to your PC.

Step 4: Set the time and date. This quick step is easy to skip, but you'll be grateful if you take a moment to configure the date and time. When you upload video to your PC, the time and date are useful pieces of information to have stored with each clip.

Step 5: Make your first recording. Don't wait until a special ceremony to test out your new camcorder—it's better to do it beforehand when you can experiment with the device and learn what it can (and can't) do. Investigate whether the camcorder has any special features, such as an LCD backlight. Some camcorders even have a prerecording function, which records continuously on a short loop and lets you capture a few seconds of video before you officially start recording.

Step 6: Transfer video to your PC. Most recent camcorders come bundled with software for transferring video to a PC. If you're already familiar with video-editing software on your PC, you may prefer to use it to upload video to your computer. A third option might be to choose from a list of programs Windows presents when you connect the device. One tip: Find out if the order in which you connect and power on the camcorder affects whether the device is recognized by your computer.

Step 7: Delete the test video. Lastly, delete the test video after you've confirmed you uploaded it properly to your PC. This will free up valuable memory for the next time you use the camcorder. ▮

BY **Heidi V. Anderson**

Set Up A New Digital Camera

What To Do Once It's Out Of The Box

Bringing home a new digital cam-era is an exciting occasion, but there are a few steps you'll have to take before you can start snapping and sharing memories. Read on to learn how to prepare your camera for photo shoots and how to capture stunning photos to show off to family and friends.

Step 1: Charge The Battery. Before you can turn on your camera and experiment with its features, you usually must first charge its battery. Many digital cameras use rechargeable AA batteries, but others may require a specially made battery pack or have an internal battery that needs to be charged by plugging the camera into your computer via an included USB cable.

Cameras without internal batteries usually have a battery compartment on the side or bottom that slides open with a slight push. There is often a diagram in the compartment that shows the proper way to insert the batteries, though, if you're unsure, you can always consult your users manual.

Step 2: Add A Memory Card. Many digital cameras have a small amount of internal storage space, but it's usually only enough to store a handful of pictures. That's why it's important to purchase a memory card, which can increase your camera's storage capacity and let you save many more pictures and videos. If you're unsure what type of memory card to purchase for your camera, check the users manual. The memory card type is also often listed on the camera's box or in the camera's memory card compartment.

To use a memory card, locate the memory card slot, which is usually found on the side or bottom of the camera or sometimes inside the battery compartment. The slot may be protected with a rubber or plastic cover, which can be easily peeled back or removed. Most cameras require you to push the memory card in until it clicks.

Step 3: Shoot Dozens Of Photos. Although the method for taking pictures is bound to be different for each camera, there are many similarities among all camera models. Almost all digital cameras have an LCD screen that you use to frame your shots and a dial or on-screen menu that lets you select certain shooting modes, such as portrait or nighttime, to match your specific shooting situation. Likewise, most digital cameras have a playback button that you can press to review the pictures stored on your camera's memory card.
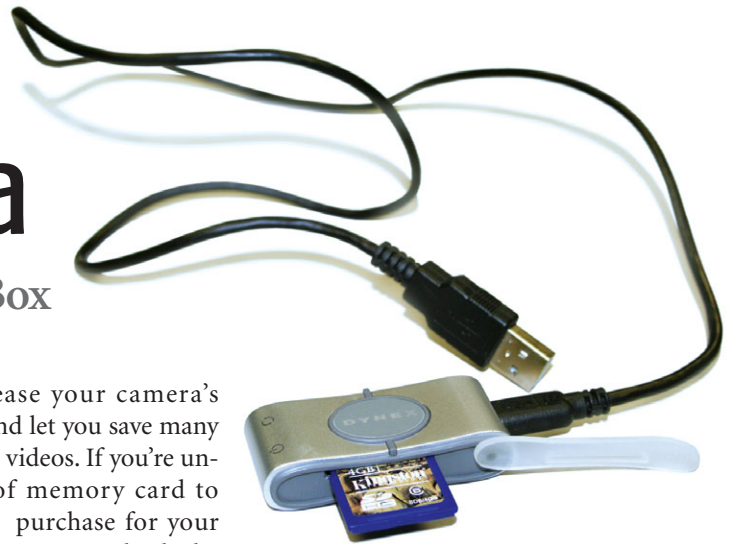
In addition to the USB cord included with most cameras, you can transfer pictures from your memory card to your PC using an external memory card reader.

The zoom control on many digital cameras is located on the top or back of the camera. The zoom may be a separate left-and-right or back-and-forth lever, or it may be integrated with another button. Refer to your camera's users manual for specific instructions and features.

Step 4: Transfer Pictures To Your PC. Most digital cameras come with a USB cord that you use to transfer pictures from your camera to your computer. Simply plug the corresponding ends of the cord into your camera and computer and then use Microsoft Windows or a program of your choice to save the files to your hard drive or upload to your favorite photo-sharing Web site.

Alternatively, you can also use an external memory card reader, which has a slot for your memory card on one end and a USB connector on the other, which you plug into your computer to begin transferring files. Some computers have a memory card reader built into the front panel, so you can simply insert your memory card without using additional cords. ❚❚

BY KRIS GLASER BRAMBILA

Set Up A New Multifunction Device

All-In-One Features For Your Home Office

If you have a home office, you know the most important thing is to be productive. You have a telephone and Internet-connected PC, but an MFD (multifunction device) that prints, copies, scans, and faxes is also a necessity to be efficient. Once you purchase the MFD, the steps that follow can sometimes be difficult and confusing. In our example, we'll use the Brother MFC-295CN ($99.99; www.brother-usa.com) to show you everything you need to do after you open the box.

Connect & Install

First, you'll want to check whether your printer comes with a cable to connect it to your PC. In most cases, the cable is a separate purchase, but it should say on the box what type of cable the printer uses. Most modern printers use USB connections, but some use parallel or network connections. The MFC-295CN has the option of connecting through USB or Ethernet.

After you make sure you have all of the components you need, you'll want to locate the users manual and software. Most manuals tell you to install the software before turning on or connecting your printer, and the Brother users manual is no different. There may be optional programs included, but there should be a custom install option if you don't want to install the extras. We installed the software, connected the printer to the computer via USB, and pressed the Power button when prompted to do so.

The Brother software disc has the necessary drivers included, and they were automatically installed. However, to find the most recent drivers for your device, you may want to visit the manufacturer's Web site. If you need to install or upgrade the drivers yourself, go to Brother's Web site and click Support. Next, click Drivers & Downloads, find your MFD using the drop-down menus, and click the printer name under Your Results. From here, you can select your OS (operating system) and language and then search for and download drivers for your device.

When the installation process completes, you can insert the printer cartridges and fill the tray with paper. The MFC-295CN has a compartment on the front where four ink cartridges fit. After you've finished, the printer may automatically print a test page, as was the case with the Brother printer, but if it doesn't, there is an easy way to do so.

In Windows 7, for example, click Start and open the Control Panel. Click Hardware And Sound, click Devices And Printers, and find the printer you want to test in the list. Double-click the printer's name or icon and select Properties from the Printer menu. Next, click Print Test Page and a sheet of paper with black and color test text or images should print.

The Brother MFC-295CN is an all-in-one printer with multiple onboard controls and a status screen that shows job progress and more. It connects to your computer via USB or to a wired network with an Ethernet cable.

This is a simple way to tell if your printer is working correctly and can also help determine if your ink cartridges are running low. (Most printers have ink level indicators. You should check your printer's ink on a regular basis and always have replacement cartridges on hand to prevent downtime.)

Copy & Scan

Once you know your device is printing correctly, you'll want to test

Tech Support

the scanning and copying features. When you test the scan function, we recommend that you scan a document as well as a photo. The MFC-295CN has options to scan to file, scan to email, or scan to OCR (optical character recognition), which lets you scan a document and automatically upload its content into a text or Word document. Your printer may have the ability to scan to PDF (Portable Document Format); this is handy if you want to scan a Word document and post it online or send it in an email. The MFC-295CN also has the option to scan to image, which allowed us to test the photo scanning capabilities of the printer.

Next, you can test the copying feature of your printer. If your device has the option, you'll want to test black-and-white and color copying. Some MFDs have you place the document you want to copy on the scanning surface, while others, such as the MFC-295CN, have a top-loading tray where you feed the document into the device. You'll also want to learn about the different features your printer may have, such as printing on the front and back of a document.

Fax Setup

The last feature you need to set up and test is the fax function of your device. The MFC-295CN provides multiple options for setting up fax. It lets you either connect it using a standard telephone line, or you can connect through Ethernet and use a VoIP (Voice over Internet Protocol) service to send faxes. Also, you can enter your fax information using the onboard controls, or you

can enter it using the provided software. Whether you use telephone service or VoIP, the entry method for your device should be similar, but you may need to consult your users manual for exact instructions.

First, you'll want to enter your fax number into the device. We used the Brother software we installed earlier and filled out the fields it provided. It automatically uploaded the information to the MFD. After you've entered the information, you should send a

The MFC-295CN's initial setup screen provides information about the printer, advanced features to install optional applications, and the basic software you'll need to set up the device. Brother also offers online registration and support.
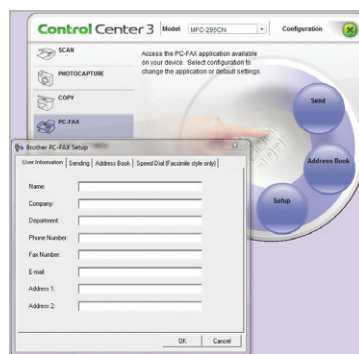
Brother's fax setup system lets you enter all of your fax info in one section. It also lets you keep an address book of contacts using the Control Center 3 application.

test fax to someone and have him send one back to you. As with the other features, it is important to make sure the faxes are of good quality and that nothing is being lost in the transmission. The MFC-295CN provides Transmission Verification Reports to confirm that faxes have been sent.

Network-Connected Devices

Some MFDs (multifunction devices) have network capabilities. This feature is perfect for households that want multiple computers to have access to the same device. Some MFDs can be connected to a wired router with an Ethernet cable, while others can connect wirelessly and be used by any computer that has access to the wireless network.

If you want to use this feature, especially wirelessly, you'll want to make sure you have solid security settings in place to prevent outsiders from accessing it. During installation, most printers instruct you to disable your firewall, but you should remember to reset the firewall after installation completes.

Networking capabilities can make your MFD even more valuable—it can be used by the entire office instead of a single PC. However, most printers that have network functionality also have USB connections, so if you'd rather use one connection over the other, it can be easily changed. ▌

The Whole Package

Productivity means being efficient and effectively using your time, so instead of needing a separate device for each function, with an MFD, you have one device that takes up much less space and allows you the room you need to work. Once setup and installation are complete, you don't have to feel like working from home is a disadvantage. You can print documents, scan pictures, make copies, and fax important information to co-workers or clients all from one device, and most importantly, from your home. ▐▌

BY JOSH COMPTON

Set Up A New
Web Camera

Place Video Calls To Friends, Family & Business Associates
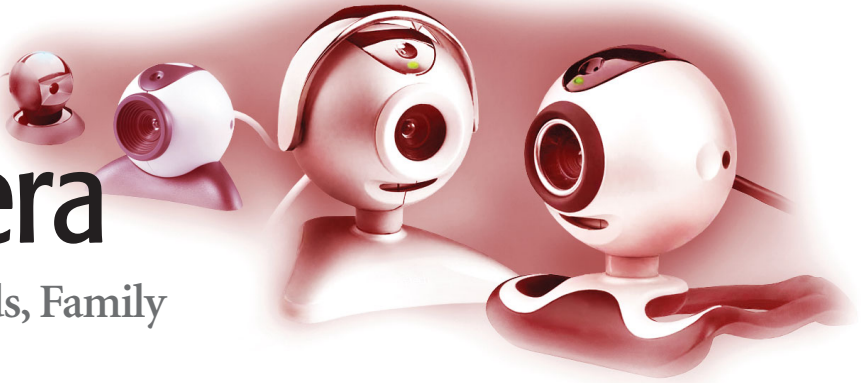
Conveniently, many notebooks integrate a Web cam for recording video clips. Most desktop PCs don't, however. Still, you can install a stand-alone model and perform these same tasks, possibly even in HD (high-definition) quality depending on the camera and chat/calling service. We'll detail how to install a Web cam on a desktop PC and start a video chat.

The Nature Of Web Cams

Most Web cam installations are quick and relatively easy because nearly all models use a USB connection, and Windows will typically have generic drivers available to have the camera functional within minutes after plugging it in. We inserted a Microsoft LifeCam HD-5000 ($49.95; www.microsoft.com) into Windows 7 and Windows Vista systems, for example, and both OSes (operating systems) immediately recognized the camera and installed a device driver without any intervention. Both Windows versions additionally offered to install the latest LifeCam software for the HD-5000, as well as Windows Live Essentials (windowslive.com/desktop), a suite of Microsoft programs, including the messaging program Live Messenger.

Rather than rely on Windows' drivers, however, it's best to use the software most Web cams include for installing a camera. This will usually provide specific drivers, software for adjusting camera settings, various effects to apply to video, and possibly a download for a video chat or call service, such as Live Messenger,

Skype (www.skype.com), or Yahoo! Messenger (messenger.yahoo.com). If you buy a used Web cam missing such software, look for the download on the manufacturer's Web site.

On To The Installation

Although individual installations differ (follow the specific instructions for your Web cam), the following steps we used to install the HD-5000 are typical of many Web cam installations. First, with the HD-5000 unplugged,
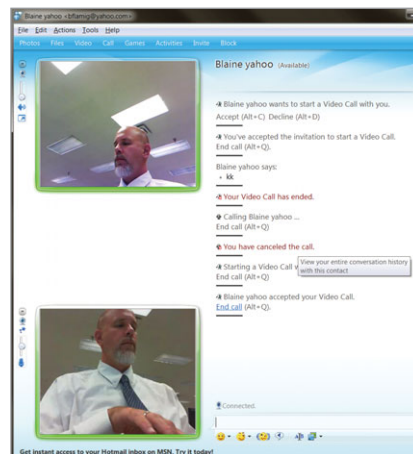
With a video call established in Windows Live Messenger, you'll be able to see the image from your own Web cam and the other caller's during the conversation.

we launched the camera's installer software. When instructed, we plugged the camera into a USB port and clicked Next.

The software then offered to install Windows Live Essentials, which we

approved, causing our Web browser to launch and navigate to the Live Essentials Web page from which we could select among individual Windows Live Essentials apps we wanted to download. We selected only Live Messenger and clicked Install. Next, we checked the option to Receive Messages For LifeCam Updates and clicked Finish.

Calling All Chatters

To video chat using Live Messenger, Skype, or another service, know that whomever you chat with needs to use the same service, be signed in to it, and have a Web cam running in order to view her. Typically, you'll initiate a video call by sending an invitation. With the HD-5000 running, for example, we launched Live Messenger (you'll need to create a free account first) and clicked Actions, Video, and Start A Video Call.

Live Messenger then presented a list of our contacts online and available for a video call. After selecting a contact, we clicked OK to send the invite. Live Messenger then launched a chat Window displaying our Web cam's image. Once our invitee accepted our invitation, Live Messenger displayed our invitee's Web cam image, as well, and we were then able to converse audibly and via instant messages. Most Web cams integrate a microphone to handle speech, but you'll need speakers to hear other callers. Conversely, you can use a headset with a built-in mic to do the same. ▌▌

by **Blaine Flamig**

Set Up A New Wireless Network

Follow These Simple Steps To Browsing Freedom

Maybe it's that flashy new iPad you're dying to get, or the laptop from work you'd like to use from the living room Barcalounger instead of the home office desk, but whatever the reason, you've decided it's time to turn your home broadband connection into a wireless hotspot. Despite the techno-jargon and acronym soup you might have seen in product ads, setting up a home wireless network isn't rocket science. Follow our guide and you'll be on the road to wire-free browsing bliss.

The Equipment

The first thing you'll need—and maybe the only thing if you use a laptop—is a wireless router. We'll assume you already have a broadband connection, typically either a cable or DSL (Digital Subscriber Line) modem from your cable or phone company,

Double-clicking the Wireless Network Connection icon in the System Tray displays a list of available networks.

respectively, and that your PC is wired directly into the modem using an Ethernet cable—just like the old dial-up days, only faster.

There are scores of wireless routers, but they fall into a few price/performance categories ranging from the cheapest, using the older 802.11g standard, to the high-end, with simultaneous, dual-band 802.11n support. For basic Web browsing, most available routers will likely provide adequate range and speed for a home network.

Set Up The Router

Regardless of your product selection, the setup is similar. Before firing up the wireless link, you must first configure the router using a wired connection. To do so, insert the router between your modem and PC, reconnect the cable currently going from PC to modem so it goes from your PC to one of the router's LAN (local-area network) sockets, and use another Ethernet cable (usually supplied with the router) between the modem and the router's Internet or WAN (wide-area network) socket. The basic connection sequence is: first the network cables and then power to the modem, to the router, and, finally, to the PC.

Many routers now include a setup CD that

automates the initial configuration via a wizard interface, and this is certainly a quick way to get one up and running; however, if you'd like to understand what's going on under the hood and how to modify the default configuration, read on.

At this point, your PC has a wired Ethernet connection to the router and should have a valid IP (Internet Protocol) address on its internal, private network. You can check this in Windows XP by opening up Control Panel, selecting Network Connections (in Classic View), double-clicking the Local Area Connection, and noting the properties listed on the tabs. In Windows Vista/7, search for Network And Sharing in the Start Search field. It should indicate that the PC is connected to the Web. Next, in Vista, click View Status and then Details. In Win7, click Local Area Connection and Details. You should see an IP address that begins with 192.168.n.x, where "n" is usually "0" or "1" and "x" is some integer. If not, make sure your LAN adapter is set to automatically obtain an IP address.

All routers are managed via a Web-based interface, but your router doesn't have a registered Internet name, so you'll need to use the raw IP address. This varies by manufacturer, so check your documentation. For example, on a D-Link router, enter 192.168.0.1 into your browser's Address bar to see the login screen. You'll need to reference your router's setup guide for the administrator account specifics and enter these into the login fields.
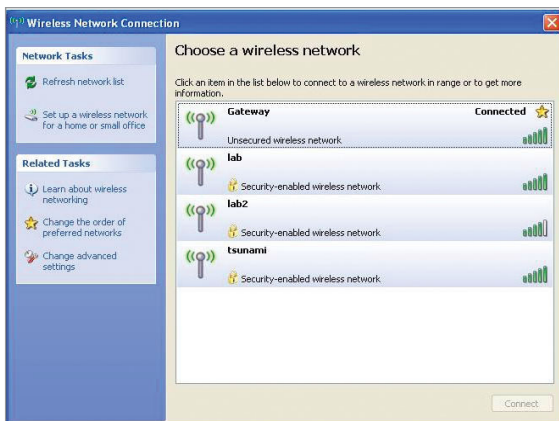
You'll now be presented with a rather intimidating Web page, organized by tabs, but don't worry: Most default settings are fine. A few things you will need to customize are the administrator password, Internet connection type, wireless network name, wireless security, and possibly the wireless channel.

The admin account on your router is set to a default password (or none at all), so it's important to change this. Just follow standard good password policy using a mixture of upper- and lowercase letters and numbers, more than eight characters, etc. The next default you'll want to change is the wireless network identifier known as the SSID (Service Set Identifier)—pick a unique, descriptive name that will distinguish your network from any neighboring hotspots.

You may need to change your Internet WAN connection type if you use DSL. Most cable modems will automatically issue your router a public Internet address using DHCP (Dynamic Host Configuration Protocol); however, DSL systems may require a login. If so, change the connection type from Automatic to PPPoE (Point-To-Point Protocol over Ethernet; the protocol used by DSL systems). This should expose a text box where you can enter your DSL username and password.

You'll also want to configure wireless security. New routers and adapters support the WPA (Wi-Fi Protected Access) and WPA2 encryption protocols, which are far more secure than the older WEP (Wired Equivalency Privacy) standard. If your wireless PC adapter supports WPA2 and you don't plan on using any older Wi-Fi devices, select WPA2 Personal (also known as preshared key); otherwise use WPA or, if available, mixed-mode WPA/WPA2. Also, if running WinXP, make sure you've updated to SP3 for the latest WPA2 drivers. Setting up security consists of selecting the method and supplying another password of at least eight characters; again, the longer and more complex the better.

You'll also see a setting for the wireless channel. New routers will default to Auto or something similar, which
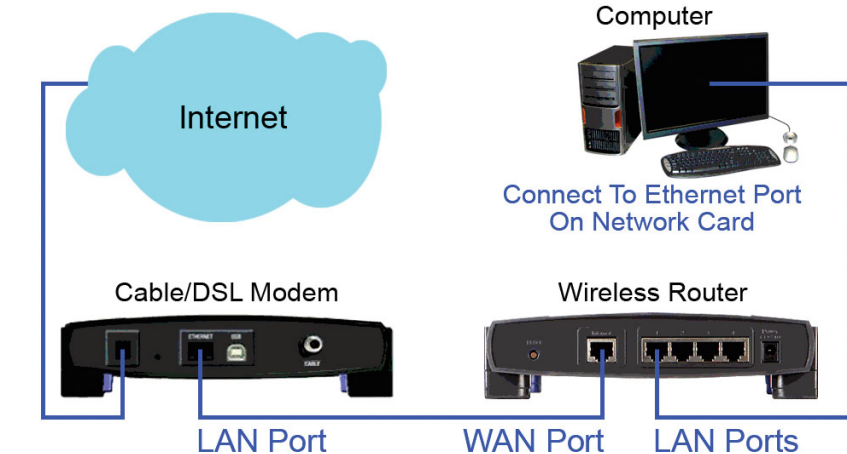
To begin the configuration process, unplug your existing modem's power supply. Find the cable connecting your modem and computer, unplug it from the modem, and plug it into one of the LAN ports on the router (there are usually four).

should be fine, but if you aren't using a dual-band router and live in an apartment, you may encounter interference, manifested by slow or intermittent connections, from neighbors on the same channel. Without diagnostic software, fixing this is a trial-and-error process, but start with channels 1, 6, or 11, because these don't overlap and have the best chance of being isolated from neighboring hotspots.

Set Up The PC Adapter

Setting up a wireless USB adapter is much like installing any other piece of software; just use the setup CD to install the device drivers and management software. (Win7 users can often omit this step. The operating system may find and install drivers automatically.) After installing the software, on WinXP, you should see the Windows wireless network icon show up in the System Tray.

Right-click the icon and select View Available Wireless Networks. Your adapter will now do a scan and return a list of networks within range. Select the SSID you just created and click Connect. If you've correctly configured WPA security, you should be presented with a dialog box asking for the network key. Type the network password you created

earlier in both boxes and click Connect. You should then see the Tray icon change to a Connected status. In Vista, select the networking icon in the Notification Area and click Connect To A Network. Select your network, click Connect, and enter your password. In Win7, click the networking icon, choose a network, click the Connect button, and enter the password.

Test The Solution

To test the setup, unplug the Ethernet cable from your PC and try browsing. A good test site is whatismyipaddress.com, which will display your router's public Internet address and some info about your Internet service provider.

For optimal wireless coverage, locate the router in a central room or on a shelf away from metallic objects. Check your wireless coverage by wandering around the house with a laptop and looking at the signal strength display.

Now that you have a reliable, secure wireless solution, adding new PCs to your network is simple. Just let them discover your network, enter your encryption password, and start browsing—you'll wonder why you didn't cut the cord years ago. ▌▌

BY KURT MARKO

Set Up A New
Smartphone

When You're Ready To Dial In

Upgrading to a smartphone can be both exhilarating and intimidating. With all the additional features and functions on a smartphone, the learning curve for new users can be steep. Using a BlackBerry Storm2 9550 ($179.99 with two-year contract; www.verizonwireless.com) smartphone, we'll show you how to get started with some of the most commonly used smartphone features.

Set Up Messaging

Email, SMS (Short Message Service, or text message), MMS (Multimedia Messaging Service), and instant messaging are all common ways people send messages to their contacts using a smartphone. SMS and MMS will not need to be set up, but you will need to connect your current email address and sign in to your instant messaging client (if it's supported by your smartphone) on your own.

To start sending and receiving emails on your BlackBerry smartphone with an existing account, select the Setup menu and choose Email Settings. Select the option to create or add an email address and then choose Next. Accept the terms and conditions, pick your email provider from the list (or choose Other), and then type in your email address and password. Choose Next and OK to finish the process. Note that it might take awhile (20 minutes or more) to start receiving emails.

If you use popular instant messaging clients, such as Google Talk, Windows Live, or AOL, you can chat with your friends from your phone. First, download the mobile application from your smartphone's application store (such as iTunes, BlackBerry App World, Android Market, etc.) if the client is supported, and then use the same login and password you use for your desktop client to start chatting with your contacts.

To set up your email account, choose from the list of email clients, and then use your address and password to finish the setup.

Establish A Wi-Fi Connection

Your mobile service provider should connect your phone to the data network for you, so you won't need to learn how to set it up for yourself. If your phone has Wi-Fi support, however, you'll want to set it up with your most commonly used wireless Internet connections, such as your home wireless network. To set up a Wi-Fi connection, go to the Setup menu and select Set Up Wi-Fi. Select Next on the welcome screen, if necessary. Select Scan For Networks to find available Wi-Fi connections and then choose the network you want to connect to. Next, enter the WEP (Wired Equivalency Privacy) security key if it's required and then select the Connect button.

Quick Tips

Here are a few more features you'll want to familiarize yourself with:

Add a new contact or calendar event. Open the Contacts or Calendar application and then select the green plus sign (+) at the bottom. You can also press the Menu button and choose New Contact or New (for Calendar).

Send a message to a contact. Open the contact's information by selecting his name from your Contacts list. Select the Menu button and choose which type of message you want to send from the list of available options.

Turn GPS (global positioning system) on and off. From the Options menu, select Advanced Options and then GPS. Choose Location On to turn on your GPS capabilities and E911 Only to turn it off.

Setup wizard. Some smartphones have a setup wizard that provides quick links to options, such as fonts and language preferences. It might also provide tutorials and other helpful information. ▌▌

BY TESSA WARNER BRENEMAN

Install A Video Card

A Little Work, Lots Of Rewards

Compared to other computer components, the world of video cards changes quickly. What was top-of-the-line last year is middle-of-the-pack now, and high-performers from two years ago are often no longer available. Thus, if you want to optimally run the latest small and home office software, it's likely that you'll need to replace a desktop computer's video card during the PC's life span. Here, we'll discuss how to pick a suitable video card for your PC and show you how to install it.

Buying Concerns

Before you go shopping for a video card, you'll need to know what types of expansion slots are available in your computer and how much wattage your power supply can dish out. It's likely that your PC's motherboard features one or more PCI-E (Peripheral Component Interconnect Express) slots—assuming your computer was purchased within the last four years. If your PC is older, the motherboard may only offer AGP (Accelerated Graphics Port) or standard PCI slots, both of which work significantly more slowly than the PCI-E interface. There's also a limited selection of AGP and PCI video cards to choose from, and if

performance is a key concern, you may opt to buy a new PC rather than continue to invest in a system with limited upgradability.

To determine what kinds of slots are in your computer, download SiSoftware Sandra Lite 2010, which is an application that can indicate the types of video interfaces on your computer. Visit tinyurl.com/ydch7bk and select one of the download links from the Affiliate Free Download Sites section to download the program. Once installed, open up the application and double-click the Hardware module. Double-click the Buses And Device tool under On-board Devices. You'll find the supported types of interfaces in the Value field on the right side. Note that the PCI-E 2.0 interface found on most current video cards is backward-compatible with the 1.0 and 1.1 interfaces found on some older motherboards.

Video cards have become physically larger in the past few years, coinciding with greater processor power and increased power demands. Most new video cards now require a combination of 6-pin and/or 8-pin connectors that are specifically

When installing the video card, push down with even force on both sides of the card.

designed to deliver consistent energy to the video card. For example, MSI's R5830 Twin Frozr II ($269.99; www.msi.com) requires a power supply that offers two 6-pin connectors and at least 500 watts of power. Some cards only need one power connector, such as Gigabyte's GV-N250OC-1GI ($149.99; www.gigabyte.com), that requires a 6-pin power connector and a power supply of 450 watts or greater. Check with your PC's manufacturer to find the wattage and connector options of your power supply to determine if there are restrictions on which video card you can select.

Prep Work

To begin any video card installation, start by uninstalling the driver for your current graphics card. If two drivers are on the same PC, the computer is likely to experience crashes, video glitches, and other types of poor performance. Visit Add Or Remove Programs (Windows XP) or the Uninstall A Program (Windows Vista and Windows 7) utility in your edition of Windows, which can be found by clicking Start and selecting Control Panel. (You may need to switch to Classic View to see this option in

MSI's R5830 Twin Frozr II ($269.99; www.msi.com) offers some enhanced cooling technologies to remove heat from the powerful ATI Radeon 5830.

WinXP.) Once the removal utility is loaded, find your ATI (www.ati .amd.com) or Nvidia (www.nvidia .com) driver, click Uninstall (Remove in WinXP), and follow the uninstaller wizard's prompts to remove the display driver from your computer. When the wizard finishes, it will indicate that you need to restart the PC. Click No and select Shut Down, because the next step is to open up the case and install your new graphics card.

Out With The Old

Unplug the power cord from the computer and remove the monitor cable from the video card's output. Open the case and touch a piece of metal on the interior of the case to ground yourself, which will help to prevent the static electricity in your body from damaging the hardware inside your computer. Next, locate your existing video card. If the PC uses integrated graphics rather than an add-on video card, look to the "Disable Integrated Graphics" sidebar and skip ahead to the Installation section.

Find the screw or plastic clip that's holding the video card to the computer's chassis and remove it. Depending on how your previous video card was powered, you may also need to detach any power cables connected to the video card. Typically, these cables are connected to the far right side or right front of the video card. Next, look for a plastic latch near the slot on

the motherboard where the video card is installed. Raise the latch and lift the card out of the slot.
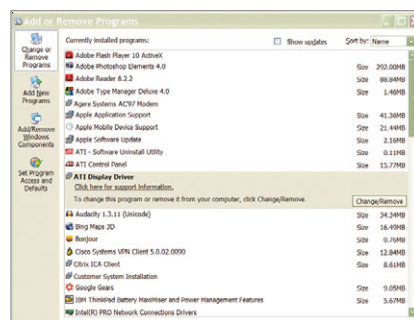
Installation

With your new video card in hand, go ahead and connect the necessary power connectors from the PC's power supply. Locate the slot that matches the size of the connector on your video card and line up the video card above the slot on the motherboard so that you can gently push the card into place.

Make sure you remove the old video card driver before you install the new driver.

Put pressure on both the left and right sides of the video card and press straight down. When you're done, only a thin line of the gold metal pins should be visible across the slot on the motherboard. Press down on the plastic levers or screw the back of the card into the chassis to secure it to the PC.

Reattach the PC's power cable and connect the monitor cable to a matching output on the video card. If your monitor only has a VGA (Video Graphics Array) input, you may need to use a DVI (Digital Visual Interface)-to-VGA adapter to send video to the display.

Load The Graphics Driver

Once you've closed the case, start up Windows and insert the installation disc that came with the graphics card. It's likely that Windows will attempt to load a driver from its database, but you should cancel the process. Open Windows Explorer and select the Setup.exe file to start the video card's installation wizard. Similar to the uninstaller, you can follow the utility's prompts to load the new graphics driver, and it will ask to restart the PC when it finishes. Restart the PC, and when Windows reboots, your PC should display video at the full resolution of your monitor.

Finishing Touches

ATI and Nvidia routinely release new drivers for video cards, which can improve performance and fix bugs. Visit the manufacturer's Web site to see if there's a new driver for your card. ▌

BY NATHAN LAKE

Disable Integrated Graphics

If the PC doesn't have a graphics card, you'll need to disable the integrated graphics chip on the motherboard before you install a new video card. Restart the computer and watch the splash screen to see what key you'll need to press to bring up the BIOS (Basic Input/Output System), which is an area where you can make changes to the key hardware on your PC. Once the BIOS is open, find the section, such as Video or System Settings, where you can either disable the integrated video or force the PC to use an add-in video card. ▌

Install A Wireless Keyboard

How To Go Cordless

Ever want to control your PC from a more comfortable seat, such as from a nearby lounge chair while you're listening to music? With a wireless keyboard, you'd be able to skip tracks, respond to instant messages, and perform other PC tasks from anywhere in the room. Wireless keyboards are also handy for people who have limited desk space, because you can stow the keyboard without tangling it with other cords and items on your desk or needing to reach behind the PC to disconnect the keyboard's cord.

Shopping Tips

Most wireless keyboards include a few multimedia controls, such as play, pause, fast-forward, and rewind, to make it easier for you to manage your playlist, but you'll want to double-check that the keyboard offers all the controls you want. If you're interested in connecting your PC to your HDTV (high-definition television), for example, consider investing in a wireless keyboard that also includes a built-in trackpad and left/right mouse buttons, such as Logitech's diNovo Edge ($179.99; www.logitech.com).

The diNovo Edge also features a volume control and a button that can be programmed to open whatever application you use the most.

A rechargeable docking station is another handy feature, because you won't need to worry about replacing batteries, and it provides a place for you to set the keyboard when you're not using it. If you enjoy turning off the lights and watching a movie on your PC, consider a wireless keyboard that features backlit keys. Wireless keyboards are available in both RF (radio frequency) and Bluetooth models.

Keyboard Installation

Start by inserting the batteries into the keyboard, or if your model uses a charging dock, plug in the charging dock to a wall outlet and attach the wireless keyboard to the dock for a few hours. Insert the receiver into a USB port on your PC. When the driver is installed, simultaneously press the Connect buttons on the receiver and keyboard. Most wireless keyboards display a green indicator light somewhere on the keyboard or receiver to indicate a successful connection.

You should now be able to type and use the basic features of the keyboard. Insert the disc that came with the keyboard and install the keyboard's software, which will let you configure the customizable features of your keyboard. For example, with Logitech's SetPoint 6.0 software, we could set up custom tasks for eight of the 12 function keys. We could also disable keys that may interfere with our PC use when accidentally pressed, such as the Windows logo Key (which kicks you to the Windows Desktop and brings up the Start menu when you're using a full-screen application) or the INSERT key (which toggles between Insert and Typeover modes).

Ready To Work

In just a few steps, your wireless keyboard should be ready to go. Now, you can enjoy the freedom of keyboard access away from the desk. If you're having trouble, check out our brief troubleshooting sidebar. ▐

BY NATHAN LAKE

Wireless Issues

Assuming that the batteries are sufficiently charged, range becomes the primary problem with wireless keyboards. Bluetooth signals work effectively within 20 to 30 feet, while radio frequency signals tend to maintain constant signal strength up to 50 feet away. Try using the keyboard closer to the receiver to determine if range is your problem. ▐
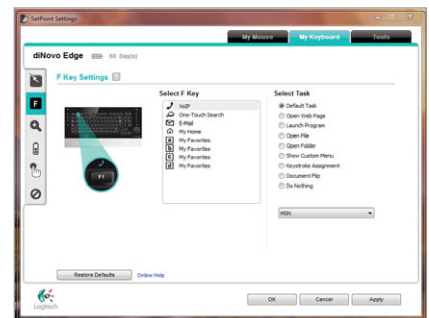
Install the software utility that came with your keyboard to configure it to suit your preferences.

Install A Wireless Mouse

Get Connected In A Minute

Mice were one of the first PC technologies to go wireless, and for good reason. Wired mice can be frustrating when the cord gets tangled with other PC cables or stuck underneath an object on your desk. Here, we'll show you how to shop for and install a wireless mouse.

Size, Shape & Features

If you regularly work at a desk, a large standard-sized mouse is typically more comfortable to use for long periods of time because you have enough space to rest the palm of your hand on the mouse's surface. With some portable mice, you may need to arch your palm and fingers to maneuver the mouse body and click the buttons. Some mice, such as Logitech's M705 Marathon Mouse ($49.99; www.logitech.com), also feature an ergonomic design that sculpts to the contours of your hand.

For those with notebooks, you'll likely want to invest in a smaller model that can easily fit inside your laptop bag. You may also want to consider one that can be used on a variety of surfaces, such as Logitech's Anywhere Mouse MX ($79.99), which features Darkfield Laser Tracking technology to let the mouse work on glass and high-gloss surfaces. With the ability to work on a wider variety of surfaces, you won't have to resort to using the trackpad if you have to use the laptop on a marble, granite, lacquered wood, or glass surface.

How To Install A Wireless Mouse

First, you'll want to begin by putting batteries in the mouse; the manufacturer typically includes a few batteries to get you started. Generally, you'll need to remove a panel on the top or bottom of the mouse to reach the battery compartment. In some cases, the wireless mouse may include a powered dock and also require you to dock the mouse for a few hours to fully charge it before use. A mouse with a power LED (light-emitting diode) or charging indicator is handy because you can tell when it's fully charged and how much energy is left in the batteries.

Once you replace the battery panel, take the receiver included with the mouse and plug it into a free USB port on the computer. Typically, you'll need to link the mouse to the receiver by simultaneously pressing the Connect buttons on both the mouse and receiver. Once the two are connected, the cursor should respond as soon as you move the mouse.

Load The Drivers

If your mouse features programmable buttons, the ability to scroll sideways, or other extras, the generic mouse driver loaded by Windows is unlikely to support those features. To use the mouse at its full potential, load the disc included with your mouse into your computer's optical drive. Explore the disc for a Setup.exe file to install the drivers and accompanying software for your mouse. For example, Logitech typically includes its SetPoint utility to let you personalize what the buttons on your mouse do, such as configuring the scroll wheel to be used in Ratchet (scrolls only a tiny fraction of the page) or Hyper-Fast (scrolling to quickly move down the page) modes. ∎

The Anywhere Mouse MX from Logitech can work on nearly any surface, which is ideal for use with a notebook.
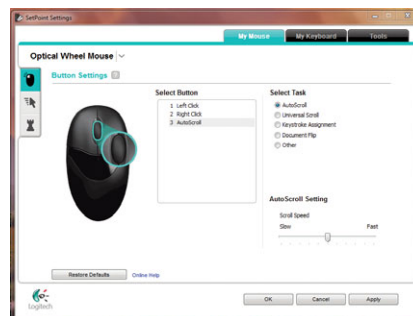
If your mouse has extra features, you'll want to install the accompanying software, such as Logitech's SetPoint.

BY NATHAN LAKE

Troubleshoot A New Small Office PC

Get It Up & Running

When our electronics are brand-new, we expect them to just work, and the office PC is no different. But sometimes, you press the Power button and nothing happens. Whether it's a disconnected cord or something more sinister, this article will help you find the problem.

Power Matters

No matter how securely you attached the power cords for the PC and monitor, the cords may have come off while you were moving the PC into your office or when you were connecting one end to the other. First, check and see if all the power cords and the display cable are properly connected. To be completely sure, it's a good idea to remove and firmly reattach the cords, because it may appear attached but not make a solid connection. Try powering on the system again.

Do you hear any noise coming from the PC? Do you see any video on the monitor? If the PC is making noise but not displaying any video,

you can at least be sure the PC has power. If you don't hear anything, try pushing the Power button harder or holding it down for a few seconds. Next, look at the power supply on the back of the PC and flip the power toggle, if present, because it may have accidentally been switched to the Off position. The toggle with the single line (designed to appear as a 1 and symbolize On in binary) should be in the downward position. A circle (designed to appear as a 0 and symbolize Off in binary) disconnects power from the PC, and it should be upward.

If that doesn't work, switch the toggle to the Off position for 30 seconds. This will give the capacitors within the computer time to drain of power. When you turn the PC on again, the capacitors will reset, which may fix the error that was stopping your PC from starting. Another good idea is to try plugging the power cords directly into a wall outlet, rather than a power strip or surge protector, because an old or poor surge protector may no longer transfer power to your electronics. You may also want to try switching the power toggle on the power strip and checking that other electronic devices, such as a lamp, can be powered by the wall outlet or power

You may need to flip the power toggle on your PC's power supply.

strip. If not, you may need to reset the circuit breaker for the room.

Inside Work

We've exhausted the list of external power problems, but we know that shipping can be rough on PCs. In particular, the internal cable that runs from the case's front Power button may have become disconnected during the shipping process. Start by opening the case by removing the thumbscrews on the panel. Consult the manual from your PC's manufacturer or motherboard and look for a Power SW connector, which is a thin 2-pin connector that can typically be found on the lower-right side of the motherboard.

If the Power SW connector is loose, examine the diagram for your motherboard manual to see where the 2-pin connector must be connected. It's also possible that "PWR SW" or "PW" may be written in small print above the connector on the silicon board. With the Power SW connector back in place, try starting the PC again.

Return

A brand-new PC will be under warranty, and if you've gotten this far, you can safely tell the tech support agent that you've tried everything and the system won't power on. The problem

Tech Support

may be a broken power supply, a short with a cord that's connected to the motherboard, or a bad power cable. Whatever the case, the PC's manufacturer should fix the problem or give you a replacement unit that runs.

Lights But No Picture

In this scenario, you hear fans run and can see lights on the Power button or inside the computer, but you don't see any images on the monitor. First, check and see if there are any indications of power on the monitor, such as a light near the Power button or a No Signal message. Assuming it is plugged in, try pressing the Power button to ensure that the monitor isn't turned off.

Most current monitors support multiple types of inputs, and you may need to cycle through the input selections to switch the display to the correct input. Typically, monitors feature an Input button that you can press to move among the display options. It's also important to make sure that the monitor cable is securely connected to both your monitor and the video output on the PC. Press firmly on the connectors and tightly fasten the two screws on each plug. You should also examine the cord for any cuts or kinks, which can block the video signal from reaching the monitor. If you have a second video cable on hand, try switching out cables to ensure that the cable isn't the problem.

Another way to determine the cause of the problem is to try the monitor on another computer. If the monitor works on a second computer, your PC likely has an issue with its video card or integrated graphics processor that's preventing it from displaying video on the monitor. Follow the instructions in the next section to reseat the video card or contact the manufacturer about a warranty replacement for your new PC. If the monitor doesn't work on the second PC, try connecting a spare monitor to the new computer to determine whether it works with another monitor.

Check that the power strip is powered on and functioning properly.

Check The Video Card

Similar to issues with power connectors, video cards—especially recent models that are built with large, heavy fans—can become unseated during shipping. Before you try to reseat the card, you should ground yourself by touching a metal object, such as the frame of the case, to discharge the static from your body. You can also invest in an antistatic wrist band from a local electronics retailer.
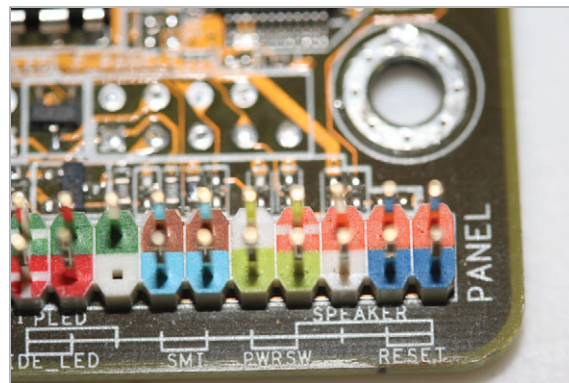
Cables and connectors, such as the PWR SW (Power switch) connector can become disconnected during shipping, and you may need to reconnect them.

Next, unplug the power cord from the computer and remove the monitor cable. Open the case and locate the video card, which is the component with the video outputs. Remove the screw that holds the video card in place from the chassis (or flip the plastic bracket that locks above the chassis) and release the plastic tab on the motherboard to unlock the video card. Pull out the video card and realign it over the slot. Push the video card straight down until the screw hole in the video card's metal plate lines up over the hole in the computer's chassis.

Most new video cards also require dedicated energy from the power supply, and it's likely that the video card needs power from 6-pin and/or 8-pin PCI-E (Peripheral Component Interconnect Express) connectors. Check that there are no loose 6-pin (has six physical holes) or 8-pin (eight physical holes) connectors hanging around the video card. When you're sure the video card is properly attached and powered, screw the card to the chassis and put the side panel back on the case.

Other Problems

If your PC appears to start but it has an issue that's preventing it from booting into Windows, such as the appearance of an error message or an audible beep code, it's a good idea to return your new office PC right away, because it's still under warranty. Other situations that justify a warranty return include when the computer turns on for only a few seconds before shutting down, if the computer hangs while booting into Windows, or if spontaneous reboots occur. ▐▌

BY NATHAN LAKE

Windows XP:

Solve Common Problems

L et's face it—having a problem with a Windows XP system is a pretty common occurrence, but some problems are more common than others. So, we've compiled a list of problems that SOHO (small and home office) users frequently face, along with likely solutions for each.

Before we get started, please take heed of an important caveat: Some of the solutions here involve modifying the Windows Registry using the Registry Editor, which can cause problems if you're not careful (and sometimes even when you are). Therefore, it's a good idea to back up the Windows Registry before making any changes to it.

The easiest way to do this is to use WinXP's System Restore feature to create a restore point, which will allow you to undo your changes later should you encounter any adverse effects. To create a restore point, click Start, All Programs, Accessories, System Tools, and System Restore. Choose Create A Restore Point and click Next to go through the wizard. Should you wind up needing your restore point, return to the System Restore utility, choose Restore My Computer To An Earlier Time, and click Next to choose the restore point you want to use. Now, on to the problems and solutions.

Problem: The Recycle Bin is missing from the Desktop.

Solution: When WinXP's Recycle Bin is nowhere to be found, it's usually because its Registry key has unexpectedly gone missing. It's easy enough to bring back. Click Start, click Run, type **regedit**, and press ENTER to open the Registry Editor. Navigate your way to the following Registry key and highlight it:

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Explorer\Desktop\NameSpace. Now, right-click NameSpace, select New, and then select Key. In the box that appears, replace New Key #1 with the following: **{645FF040-5081-101B-9F08-00AA002F954E}** (be sure to include the brackets).

After you close the Registry Editor, right-click an empty part of the

Desktop, choose Refresh, and your Recycle Bin should reappear. If it doesn't, log out of Windows and then log back in, but you should not need to reboot.

Problem: You can't log on to your Windows account due to a forgotten password.

Solution: WinXP offers two ways to recover from a forgotten password: One is the password hint, and the other is a password reset disc. Naturally, neither will help you if you didn't set it up in advance, so what can you do if you find yourself in this predicament? If someone else

If the Recycle Bin goes missing from your Windows XP Desktop, adding a Registry key will make it appear again.

Tech Support
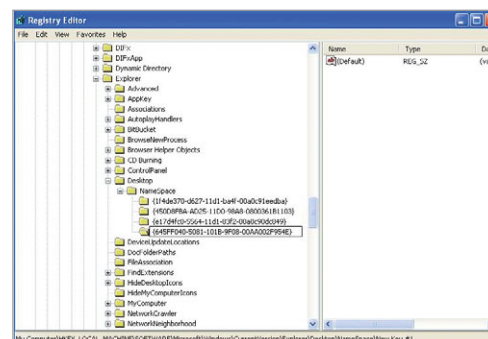
If you forget your Windows password and didn't previously create a password hint or reset disc, you can use WinXP's built-in administrator account (accessible via Safe Mode and sans password, by default) to reset it.

has an administrator-level account on your system, that person can change your account's password for you. If you're not that lucky, there is another option: Change your account's password using WinXP's built-in administrator account.

Every WinXP system has an administrator account, an account that has a blank password by default. The administrator account is hidden, however, so to access it, you'll need to start the system in Safe Mode. To start in Safe Mode, press F8 several times as your system is starting but before the colorful WinXP logo appears. If you do wind up seeing the logo, let Windows finish booting, restart the system, and try again. When you see the Windows Advanced Options Menu after pressing F8, choose Safe Mode and press ENTER.

When WinXP's familiar Welcome screen appears, you'll notice that the accounts you created on the system and an administrator account are now visible. Log in with this account (after which you'll need to acknowledge a warning box about running in Safe Mode) and then click Start, Control Panel, and User Accounts. Now, double-click the account with the forgotten password and select the Change The Password option (this time you

might consider creating a password hint, as well). When you restart the system (this time let it start normally), you'll have access to your account again.

You can use this method to change the password for any Windows account on a computer. Although it's handy for getting out of a jam, if you're concerned about someone using this to change someone else's password without permission, you should put a password on the administrator account and make sure other accounts have set up password hints and/or reset discs.

Problem: Your CD/DVD drive's icon is missing from My Computer, or the icon is there but the drive doesn't recognize when you insert a disc, or it can't read or write to a disc.

Solution: Such problems can have a variety of causes, but one of the most common culprits is one or two errant Registry entries that can occur after installing or uninstalling a program—particularly when the program does CD/DVD recording. To correct the problem, click Start, select Run, type **regedit**, and press ENTER. Navigate your way to the following Registry key and highlight it: HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Class\{4D36E965-E325-11CE-BFC1-08002BE10318}.

In Registry Editor's right pane, find the UpperFilters entry; right-click it, choose Delete, and click Yes to confirm the deletion. Repeat the process to delete the LowerFilters entry, as well. Now, close the Registry Editor and restart your system. Your malfunctioning CD/DVD drive should again be visible and working properly.

(*NOTE: In some cases, you may not have an UpperFilters entry, only a LowerFilters one. If you have neither entry, your best bet is to uninstall and*

then reinstall any third-party disc-burning software you have.)

Problem: When you open Device Manager to view or configure installed hardware, your list of devices fails to appear, and you see nothing but blank space.

Solution: When you don't see the expected list of hardware in Device Manager, it's typically due to incorrect security settings. To fix them, click Start, select Run, type **regedit**, and press ENTER. (*NOTE: You'll need an administrator account to make the following changes.*) Navigate to the following Registry key and highlight it:
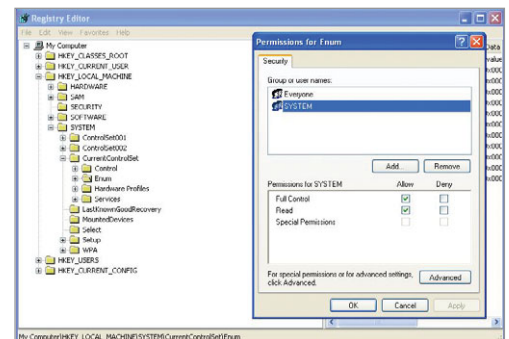
When WinXP's Device Manager appears empty, check that its Registry key has the proper security settings.

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Enum. Next, right-click Enum and select Permissions. Click Add and in the box labeled Enter The Object Names To Select, type **everyone; system** (note that the two words are separated by a semi-colon and not a comma). Click OK.

Now, highlight Everyone and put a check mark in the Allow box next to Read and then highlight System and put a check mark in the Allow box next to Full Control. Click the Advanced button and put a check mark in the box labeled Replace Permissions On All Child Objects With Entries Shown Here and click OK. Click Yes in the security window that appears and then close the Registry Editor. Your hardware should again be visible in
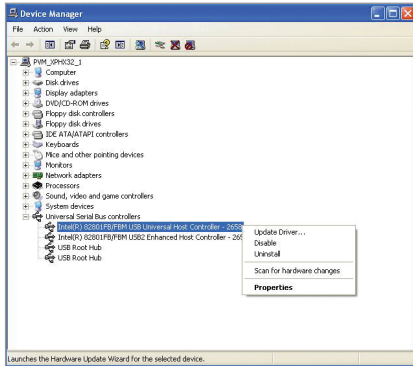
When obstinate USB ports stop recognizing devices, uninstalling the controllers—so that WinXP will reinstall them after a reboot—will usually fix things.

Device Manager. (If you left Device Manager open while making the Registry changes, you'll need to close and reopen it for your hardware to appear.)

Problem: Your USB ports stop working and no longer recognize devices, typically after inserting and immediately removing a device or after doing so several times in rapid succession.

Solution: When you find your USB ports in an unresponsive state, there are a few things you can do to get them up and running again. The first is to force WinXP to scan for hardware changes. To do this, click Start, select Run, type **devmgmt.msc**, and click OK to open Device Manager. Right-click the entry for your computer at the top of the list and choose Scan For Hardware Changes. If that doesn't cause your system to recognize USB devices again, check again after rebooting the system.

If your system still refuses to recognize USB devices after scanning for hardware changes and rebooting, there's one more thing to try. Return to Device Manager and then find and expand the Universal Serial Bus Controllers category. (It is usually the last item in the list, so you may have to scroll to find it.) Next, locate the entries (there will likely be several) that contain the word "controller." Right-click each of them and choose

Uninstall. (Each time you uninstall a USB controller, an entry labeled USB Root Hub will be removed along with it.)

When all of the USB controllers are gone, reboot your system. When WinXP starts up again, it will detect the hardware changes and automatically reinstall the drivers for the USB controllers, after which your problem should be resolved.

Error Message: Windows cannot find file C:\Windows\system32\Rundll32.exe. Make sure you typed the name correctly and try again.

Translation: This common error message indicates that Rundll32.exe, which is an important system file used to run code within Windows' DLLs (dynamic-link libraries), is either missing or has become corrupt, and it typically occurs when trying to run Control Panel items. You may also encounter this error message when trying to open files, folders, or programs.

Rundll32.exe is also a frequent target of malware, so this error is often a sign that there's a malware infection on your system, or that an attempt to clean an infection removed an infected copy of Rundll32.exe but left your system without a legitimate version.

Solution: The first step to correcting this error is to scan and clean your system with up-to-date antivirus software if you haven't already done so. If after removing a virus—or if no virus was detected—you still encounter the error, you'll need to find a copy of Rundll32.exe to put back in the Windows\system32 folder.

There are a few places you can find a replacement Rundll32.exe file tucked away in your system's Windows folder. (The first time you try to access the Windows folder, you may see a warning about its files being hidden and have to click Show The Contents Of This Folder.

The first place to look for Rundll32.exe is the Windows\servicepackfiles\i386 folder. If you don't have this folder on your system, you should

be able to find Rundll32.exe in the Windows\system32\dllcache folder. This folder is hidden, though, so to view it, first make sure your Explorer window is in Windows\system32. Then, click Tools, Folder Options, and the View tab. Under Advanced Settings, locate Hidden Files And Folders, select Show Hidden Files And Folders, and then remove the check mark from the box labeled Hide Protected Operating System Files (Recommended). Click OK, and the Dllcache folder will appear.

When you find the Rundll32.exe file in either of the above locations (you won't see the .EXE extension; the file will simply be labeled Rundll32), right-click and copy (do not cut) the file and then paste it into the Windows\system32 folder. If you can't find either of the aforementioned folders (or don't want to dig around through system folders) and have your original WinXP CD handy, you can use it to restore Rundll32.exe. Insert the disc, click Start, select Run, type **cmd**, and press ENTER to open a command line window. At the prompt, type **expand D:\i386\rundll32.ex_ c:\windows\system32\rundll32.exe** (assuming D: is the letter of your CD/DVD drive).

Restart your computer after restoring Rundll32.exe, but before you do, if you disabled any hidden file settings, be sure to go back and re-enable them.

Keep WinXP Up-To-Date

If you're planning to stick with WinXP for the foreseeable future, you should know that Microsoft ended support for WinXP Service Pack 2 on July 13. That means you must have Service Pack 3 to continue receiving security updates or patches. To get Service Pack 3, run Windows Update or download the Service Pack from tinyurl.com/4qvth5. ▐▌

BY JOSEPH MORAN

Windows 7:

Solve Common Problems

Microsoft's Windows 7 operating system continues to receive rave reviews for its stability. Yet despite the software's knack for running without trouble, problems do occur for some users. Solving common Win7 problems often requires some basic troubleshooting, but most of these problems have relatively easy solutions that can get you back to your regular computing activities in no time. Here's a look at those fixes.

Problem: When upgrading from Windows Vista, the Win7 installation process stops at 62%.

Solution: Win7 can hang at various points during the installation process for different reasons, but one problem occurs more often than others. If your installation stops at precisely 62%, it's likely because a service has stopped responding. To fix the problem, restart your computer and let it roll back to Vista. Once you're back in Vista, click Start, right-click Computer, and click Properties. Select Advanced System Settings on the left menu. Choose the Advanced tab, click Environment Variables, and click the New button under System Variables.

Next, type **MIG_UPGRADE_IG-NORE_PLUGINS** in the Variable Name field, type **IphlpsvcMigPlugin.dll** in the Variable Value field, and then click OK. Click OK to close the Environment Variables box, click OK to close the System Properties box, and then shut down your computer. Repeat the Win7 upgrade process.

Problem: You're unable to join a homegroup.

Solution: Win7 has eased the home networking process through its use of homegroups, which help automate network creation. However, if you're unable to join a homegroup on your network, first make sure that a homegroup actually exists. If the homegroup was created on another computer, check to make sure the homegroup has been created on that computer and that it is turned on. After verifying that the homegroup does exist, check that you're connected to the network by

If your Win7 installation keeps getting stuck at precisely 62%, add an environment variable to prevent services from interfering with the installation process.

clicking the Network icon in your Taskbar. If you're not, click Start, open the Control Panel, click Network And Internet, and open the Network And Sharing Center. Click Connect To A Network and follow the instructions to connect to your local network.

If you're still unable to connect to the homegroup, make sure your network location is set to Home by opening the Network And Sharing Center, clicking Public Network (or Work Network), and then clicking Home Network. You can also check to see if Network Discovery is turned off, which would prevent you from accessing the home network. In the left pane of the Network And Sharing Center, click Change Advanced Sharing Settings, click the Down arrow button to expand the Home Or Work profile, and select the Turn On Network Discovery radio button. Click Save Changes when finished.

If you're still having problems, make sure the required home-group-related services are running. Click Start, open the Control Panel, select System And Security, select Administrative Tools, and double-click Services (you may be prompted for an administrator password here, so make sure you have it handy before trying this step). Scroll to the HomeGroup Provider service under the Name column and make sure "Started" appears under the Status column. If it doesn't, double-click the Home-Group Provider entry, click the Start button, and click OK. Repeat this process for the Peer Networking Grouping service.

Problem: The screen is black when you start Win7.

Solution: This panic-inducing problem is often attributed to minor problems with your graphics card or the cable that connects it to the monitor. First, check that your monitor is plugged into a power socket and that the monitor cable (either VGA [Video Graphics Array] or DVI [Digital Visual Interface]) is firmly connected to both the monitor and your computer's graphics port. If the monitor flickers when moving the cable, there might be a problem with the cable itself, so try a replacement cable if you have one.

Another possibility is that your graphics card's drivers need to be updated (this is particularly likely if you just installed Win7 and are booting into the operating system for the first time). Restart your computer and press the F8 key during the boot process. When the Advanced Boot Options screen appears, use the arrow keys to highlight Enable Low-Resolution Video (640x480), press ENTER, and wait for Win7 to start. When it does, visit your graphics card manufacturer's Web site and download the latest drivers for your card. Install the drivers and restart Win7. If your computer has integrated graphics instead of a discrete graphics card, use
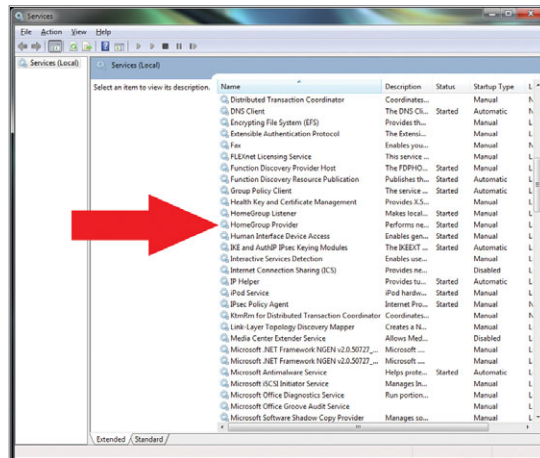
Can't connect to a homegroup? Make sure that the homegroup has been created on the host computer and that the HomeGroup Provider and Peer Networking Grouping services are started on your computer.

Windows Update (click Start, click All Programs, and click Windows Update) to obtain the most recent drivers.

Problem: Windows is unable to install important updates.

Solution: In most cases, the Win7 update process is seamless as it downloads and installs important updates in the background. However, the OS (operating system) occasionally encounters problems with the update process and cannot install certain updates. If this happens, try manually updating by clicking Start, clicking All Programs, and clicking Windows Update. In the left pane, click Check For Updates, and then click Install Updates after Windows finds the important update (or updates) it was previously unable to install. Note that some updates require you to accept

the Microsoft Software License Terms, so be sure to accept the terms to ensure a successful update installation.

Some updates can require a hefty amount of hard drive capacity, so Windows might have problems if your primary hard drive is running low on space. If you have 500MB or less of drive space left, run Disk Cleanup to free up some space. Click Start, type **disk cleanup** in the Search box, and press ENTER. Select your primary drive (usually C:) in the drop-down menu and click OK. Follow the instructions to delete unnecessary files.

Problem: Win7 returns a message that access is denied when you try to open a file or folder.

Solution: If Windows prevents you from opening a file or folder, check that you have permission to open it. Right-click the file or folder, click Properties, choose the Security tab, and click Users under Group Or User Names. Under Permissions, you'll see the permissions for Users (as opposed to Administrators) for that particular file or folder. If Read and/or Write are not selected under Allow, you'll need to log in with an administrator account to access the file or folder or have the administrator of that computer change the permissions for the file or folder. If you have an administrator account, you can choose to change the permissions yourself for your user account. To do so, choose Users, click Edit on the Security tab, click to select the appropriate permissions, and click OK.
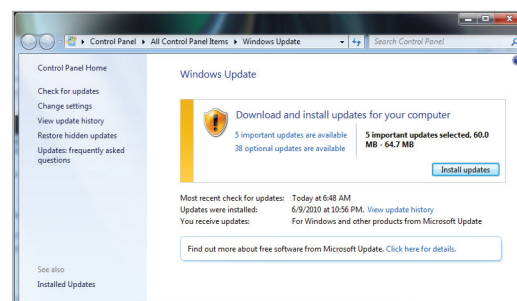
Win7 generally does a fine job of downloading and installing updates in the background, but if it's unable to install an important update, you'll need to manually check for and install updates using the Windows Update utility.

Tech Support

Problem: Win7 prevents you from logging in to your computer because your user account is locked out.
Solution: If someone tries to log in to your account too many times when using an invalid password, Win7 will lock the account. However, assuming you have a separate administrator account (and we recommend that you do, for security purposes), you can log in to Windows using that administrator account and unlock the user account.

Click Start, type **lusrmgr.msc** in the Search box, and press ENTER to launch the Local Users And Groups utility. Click to select the Users entry in the left pane, and double-click the locked account in the right pane. On the General tab, click to deselect Account Is Locked Out, click OK, close the Local Users And Group utility, and log out of Windows. Log back in using the user account.

Problem: Win7 does not start after being in Sleep Mode.
Solution: Microsoft's latest OS includes a wealth of power-saving options, but they don't always work as designed, especially when the OS is paired with certain motherboards. If Win7 refuses to start after being in Sleep Mode, you can tweak the power options to prevent Win7 from sleeping. Reboot your computer and open the Control Panel, select System And Security, and open Power Options. Next to your selected Power Plan (for example, Balanced), click Change Plan Settings, select Never in the drop-down menu beside Put The Computer To Sleep, and then click Change Advanced Power Settings. Click to expand the Sleep entry, click to expand the Allow Hybrid Sleep entry, Click On, and change the setting in the drop-down menu to Off. Click OK.

If you want your computer to go to sleep after a certain period, this solution will serve only as a workaround. Because this problem is often related to outdated motherboard software, check your motherboard manufacturer's Web site for a BIOS (Basic Input/Output) update.

Problem: You're unable to print from a printer connected to your homegroup.
Solution: First, check that the printer is plugged in and turned on. Next, make sure that the person who connected the printer to the homegroup didn't change the sharing settings, because if the printer is no longer shared, you won't have access to it through the homegroup. If the printer is active and being shared through the homegroup, try printing directly to the printer from the computer to which it's connected. If the printer doesn't print from the host computer, you'll need to troubleshoot that printer connection instead of the homegroup issue. If none of these steps work, try rebooting both the host computer and your computer. You can also try leaving the homegroup and rejoining.

Problem: You cannot open or copy files from the Web.
Solution: Win7 is serious about security, and for good reason: Plenty of threats exist on the Internet. However, when Win7 security controls are set too strictly, they can prevent you from accessing files on the Web. To fix this problem, click Start, type **Internet Options** in the Search box, and press ENTER. Choose the Security tab, select the Internet zone, and move the slider under Security Level For This Zone to a lower level. For example, if the slider is set to High, move it to Medium-High. Click OK when finished.

If you're still having problems opening or copying Web files after changing this level, move the security slider to a lower level. If this problem is occurring only with a particular site, return to the Security tab in the Internet Properties dialog box and click the Trusted Sites zone. Next, click the Sites button, copy the site's URL to the Add This Website To The Zone field, click Add, click Close, and click OK.

Having Other Problems?

These solutions will guide you through the most common Win7 problems, but if you find yourself grappling with other issues, try taking advantage of a nifty Microsoft tool that automates the troubleshooting process. Microsoft Fix It (support.microsoft.com/fixit) provides a wide range of automated wizards that run diagnostics on your computer to find and solve various issues. These wizards are helpful for solving issues that are caused by any of a huge range of problems, such as slow system performance. ▌▌
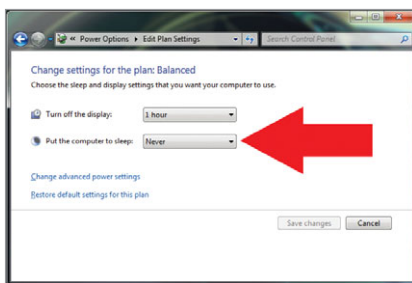
Win7 can get stuck in Sleep mode on certain computers. To work around the problem, change your power plan options so that your computer never goes to sleep.
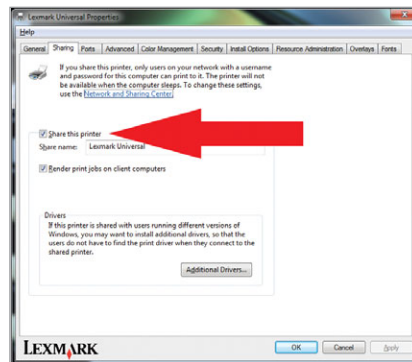
If you're unable to print from a printer connected to your homegroup, check the printer's Properties on the host computer to ensure that the printer is being shared.

BY CHRISTIAN PERRY

Mac OS X

Solve Common Problems

Though Macs have a reputation for reliability, they are still complicated machines that can encounter problems. Here, for your troubleshooting pleasure, is a batch of common problems that Mac users face, and what to do about them.

Problem: You can't play videos with an .AVI extension.

Solution: There are certain video formats that the Mac simply can't play out of the box. In particular, those videos with an .AVI file extension. AVI (Audio-Video Interleaved) is a file container format, which usually contains video encoded with DivX or XviD. The Mac can't play these files.

Perian installs as a System Preference pane, adding greater video format support to QuickTime Player.

Fortunately, there is an easy and free solution. Visit www.perian.org and download the free QuickTime plug-in. This software installs as a System Preference pane; once in place, your existing QuickTime Player application can play a broad variety of video formats, including .AVIs.

Problem: Your Mac crashes.

Solution: Perhaps you're working on your Mac, minding your own business, when the screen suddenly goes dim, and a message appears in several languages. It says "You need to restart

Although the Mac provides an easy-to-use computing experience, problems still tend to rear their nasty heads. But with a little help here, and some patience, you'll be back on track in no time.
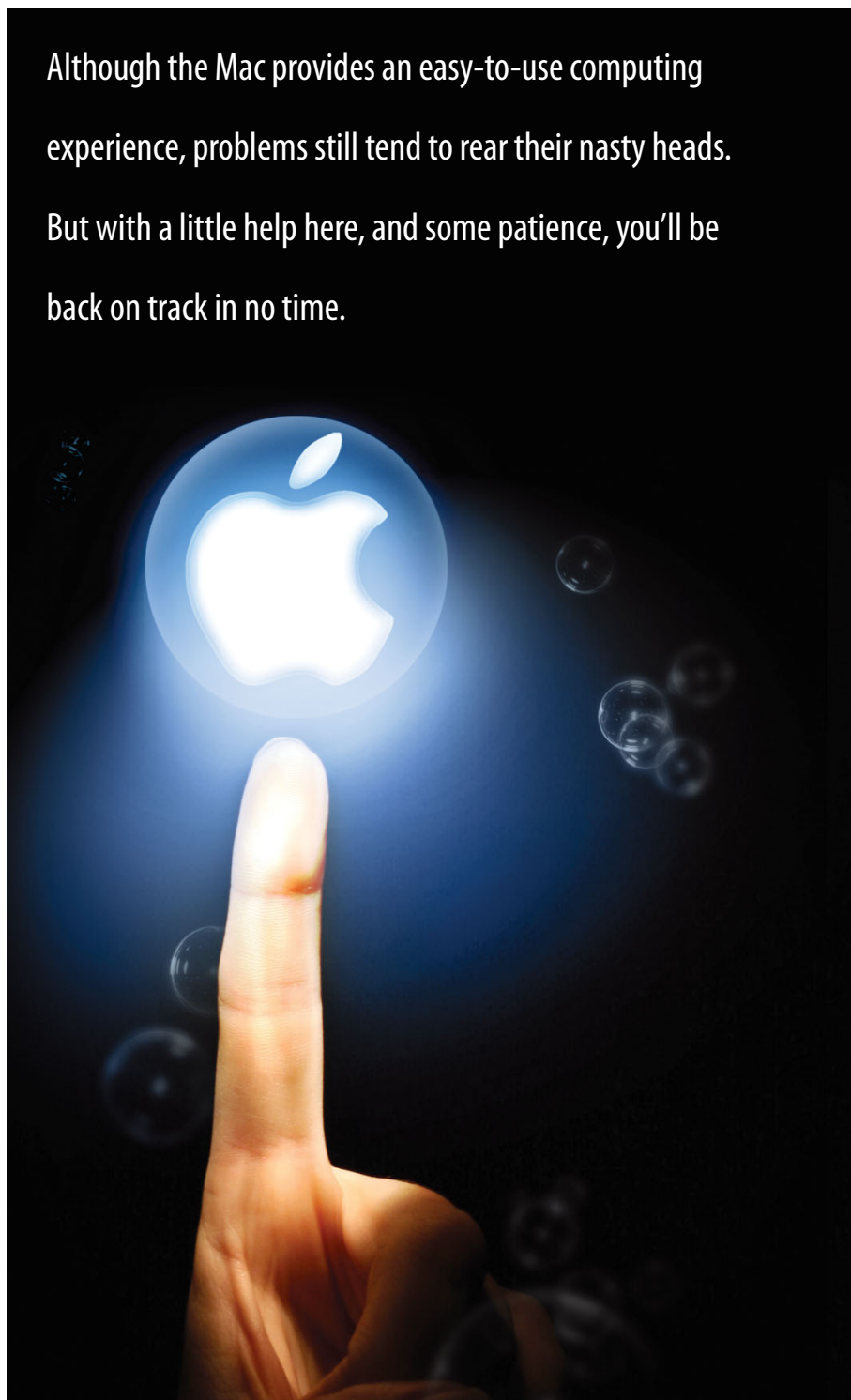
Tech Support

This is a complete system freeze. Restart and hope for the best.

When you don't eject the disk properly, Mac OS X will provide a stern warning, along with some comfort.

A crashed application will prompt a message indicating that your system will remain stable. Consider taking the time to file a report with Apple.

---

your computer. . . ." While it's a rare occurrence, it's a particularly nasty problem to have. The immediate solution is to simply follow the instructions provided and restart your Mac. Often, this is a transient glitch in the system that you won't see again.

However, if the crash occurs with great frequency, then you have a problem. A likely cause is the recent installation of faulty software. Applications can install items called kernel extensions, which add features to the core of the operating system. Check the Extensions folder for anything that looks like it came from any software you installed recently. To find the folder, click Go and Go To Folder. Then type **System/Library/Extensions** and press ENTER. If you can identify the culprit, refer to that application's developer's site for an update or to file a bug report. Until you find a resolution, move the kernel extension to the trash and reboot your Mac.
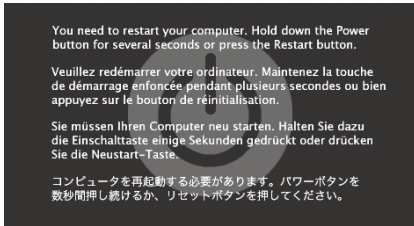
Problem: You improperly ejected a drive.
Solution: Sometimes, when you have a lot going on with your Mac, you'll unwittingly unplug a hard drive or pull a USB key out without properly ejecting it. You'll see a message saying "The disk was not ejected properly. . . ." Earlier versions of Mac OS X take a more stern tone, advising you of the risk of damage to the drive. The latest version of OS X takes a more reassuring tone, saying instead that any damage will be automatically repaired when the drive is next connected.

The risk with prematurely ejecting a hard drive is interrupting a write operation on that drive. If you were in the midst of saving a file while you unplugged the drive, it's likely that the file will be corrupted. The operating system also performs various file management tasks in the background; interrupting these tasks could theoretically render the entire file system unusable.

If this happens to you, don't panic; you likely still have a perfectly safe drive on your hands. Reconnect the drive and check any files you were attempting to save to the drive. Next time, eject the drive properly by holding the CTRL key down while clicking the drive icon and then choosing Eject.

Problem: Programs quit unexpectedly.
Solution: Also in the "scary but safe" camp is the Quit Unexpectedly message. While working with any program on the Mac, if it suffers an error, it can simply die, possibly taking any unsaved data along with it.

In the days prior to Mac OS X, such an event indicated a fundamental instability in the operating system, and experience would quickly teach you to reboot immediately to save further heartbreak. But thanks to Mac OS X's Unix underpinnings, applications run in their own protected memory space and have little chance of taking out the operating system when they crash. This message is for the Mac veterans, reassuring them that life will go on, no reboot required.

And what of the option to file a report for Apple? This feature allows you to send general information about your system's specifications, along with the "stack trace" (a gibberish of text that

only makes sense to programmers) of the crash to Apple. The company then makes that information available to the developer, who can determine the cause of the crash and fix it. If you don't mind taking the time, filing a report can ultimately improve the quality of the software you use.

Error Message: The Finder can't complete the operation because some data in "*<Filename>*" can't be read or written (Error code -36).
Translation: During a file copy, you may suddenly run into this error message. The so-called "error -36" is a common one for the Mac OS, and a search on Google will yield many possible causes. Essentially, this error stems from a problem either reading the file being copied or writing to the file's new location.

Solution: To diagnose the cause of the problem, start with the source file. Is the drive on which the file is located still connected and available? You might see this message when a drive suddenly disappears from the network. Confirm as well that the destination drive is connected and available. You might also try duplicating the file (Command-D) to create a new copy in the same location as the source file, then moving that new version to the ultimate destination.

Assuming all is well with your file locations, check the source file itself. In many cases, this error is triggered by corruption in the file. Try opening it in the file's default application and confirm that everything works properly.

If all else fails, you may be dealing with a permissions or hard drive

Tech Support

issue. Try opening the Disk Utility application (find it by navigating to Applications and then Utilities) and, with the target disk selected, click Repair Disk Permissions. While you're here, you can also attempt a verification of the drive itself by clicking Confirm Disk.

Error Message: There is no default application specified to open the document <*document name*>.

Translation: Perhaps you have received a file from a friend via email. It has a generic (that is, blank) icon, and when you double-click it to view the contents, you receive this error message. The message will prompt you to locate the application that can work with this type of file, but in our experience, if you are getting this message, you are unlikely to have such an application on your Mac.

Solution: In many cases, there's little you can do but respond to your friend, asking for the file in a format that you can open. If you are unsure what application belongs to the file, check an online resource such as FILExt (filext.com), where you can enter the file extension of the file and see a definition, as well as a list of applications known to work with it.

Problem: When sharing .ZIP files with PC users, you receive complaints about .DS_Store files.

Solution: If you have ever shared files with your Windows-using colleagues, you have probably exulted in the Mac's built-in support for creating and opening .ZIP archives. A simple right-click or CTRL-click on a group of files or a folder will reveal the option (Compress or Archive) to create a single compressed file that you can readily email to others.

But those Windows users might complain if they receive a compressed folder from you, because alongside those handy files you've sent are files that you don't see. They're called .DS_Store, and there's one in every folder.

You don't see this file on the Mac because of that period preceding the
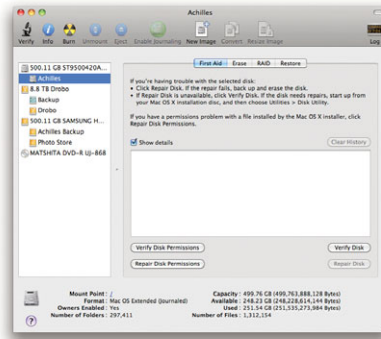
Use Disk Utility to repair permissions on a hard drive, as well as to check for problems.

file name; it's a signal to the Finder that this is a hidden file (Linux and Unix users will recognize this practice). The Desktop Services Store keeps track of positioning and other options for a particular folder. Suffice to say, this file has no value once it's placed on a Windows user's computer, and it can be safely deleted.

However, you may wish to avoid the nuisance caused by seeing these files. Fortunately, there is a way to strip them from directories before you create your .ZIP archive.

1. Open the Terminal application via Applications and Utilities.
2. On the newly opened command line, type the command **cd ~** followed by the file path of the folder you are archiving. The tilde (~) represents your home directory, so you don't need to type that portion of the file path. For example, if your folder is on the desktop, type **cd ~/Desktop** and press ENTER.
3. Issue the following command, where <*your_dir*> is the name of the directory you wish to remove the .DS_Store files from: find <*your_dir*> -type f -name .DS_Store -print0 | xargs -0 rm.

Continuing from our example above, if you're working with a file named Photos on the desktop, you'd type **find Photos -type f -name .DS_Store -print0 | xargs -0 rm** and press ENTER.

This command uses the Find utility to do a search through the given folder for files named .DS_Store. It then forwards the results of the find to another utility, which deletes the file. (If this Terminal stuff is too scary, you can use a free little utility by IntraArts called DSWipe. It's available at www.intrarts.com/software.html). You can now safely zip up the files, and your Windows-using friends should have little to complain about.

Problem: The Dock acts up.

Solution: Love it or hate it, the Dock is a vital component of Mac OS X. It serves as both the place to view your currently running applications and to store both applications and files for easy retrieval. While this tool has its odd points, for the most part, the Dock serves its duties with aplomb.

The Dock actually handles more than it appears. In addition to the strip that sits on the edge of your display, the Dock also runs Dashboard, the Mac's widget system, as well as the Application Switcher, which activates with the Command-TAB keyboard shortcut.

These three apparently different systems can put a lot of burden on a little system utility. From supposedly running applications in the Dock that aren't actually open, to a frozen Application Switcher, problems sometimes just crop up.

The good news is that a fix is really simple. Open up the Terminal application again (we use it because it's fun), and issue this single command: killall Dock. That command force-quits the Dock application, which automatically restarts. Chances are, that will fix any problem you might have.

Problems In Search Of Solutions

Although the Mac provides an easy-to-use computing experience, problems still tend to rear their nasty heads. But with a little help here, and some patience, you'll be back on track in no time. ▐▌

<div align="right">

BY AARON VEGH

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Tales From The Trenches

Monitor-In-Law

by Gregory Anderson

The voicemail came across from my father-in-law one Saturday afternoon while I was "mowing" our miserable strip of city crabgrass. When I saw the missed call, I knew I was getting hit up for advice. My wife's dad, whom I love, is great to talk to but doesn't usually pick up the phone until he's in need of assistance. "OK," I thought, "I wonder what this will be—it's been awhile." To my delight (but not surprise) he was indeed calling for tech advice, but of a particular type. "I need a new monitor," he stated. "Any recommendations?" This is the fun stuff—playing monitor matchmaker and shopping without spending. I'll tell you what I told him.

The first piece of advice I give about computer monitors is to look at TVs. At this point, the line between an LCD displaying PC-generated pixels and one displaying digital TV pixels is so—um—pixilated as to be indistinguishable. It's true that if you're anticipating one dominant purpose, such as high-end gaming or graphic design with only periodic DVD or HDTV viewing, you'll probably prioritize features a little differently than a true dual-purpose display. But in either case, there's simply no good reason to limit your choices or the ways in which you might reuse the device down the line. Last year, we bought a small LCD TV for the bedroom while trying to survive a stint on bedrest and, when the crisis was over, converted it to a second monitor in a dual-screen configuration. There's no reason you couldn't repurpose in the reverse order, as well.

We were already on the same page with the concept, though. He was looking for more specific guidance. Diaper changes and music classes tend to cut into Best Buy browsing time, so I don't keep up on all the latest models and newest releases the way I used to, but I still had some general pointers. What about widescreen? Yes—by all means. Windows and most graphics adapters are more than capable of supporting widescreen display resolutions, and why wouldn't you want the extra screen real estate? By "TV" did I mean a 42-inch HDTV hanging on the wall above his little office desk and two-year-old PC? Not at all.

There's no point in going overboard. You can get a 26-inch LCD for a few hundred bucks that will blow away your old monitor for sharpness, color, and space savings and still pull decent duty as an office PC for kids' movies or multitasking during the playoffs.

Matching up video inputs is the biggest challenge in picking the right monitor these days. You'll give yourself all sorts of tech headaches if you pick a model that doesn't support the same video standards as your graphics adapter or doesn't have enough ports to accept both the PC and television feeds. Some video cards offer HDMI (High-Definition Multimedia Interface) outputs, which is great, but many only offer DVI (Digital Visual Interface) or even the older VGA (Video Graphics Array) video outputs. Very few TVs won't have a VGA input, but DVI may be tougher to come by. HDMI is pretty standard but not yet universal, especially among cheaper models. If you're going to hook up a television feed directly to the monitor (rather than routing through a TV tuner card on your PC), do a similar check to make sure a candidate display has the right kinds and quantity of inputs. We're happy just attaching an antenna to the coax input on our little display, picking up local digital and HD channels over the air when we're not using the screen as a second monitor on a VGA output.

In the end, he's happy with his new LCD hooked up to his PC as a single monitor and also connected to a secondary cable box. He can switch back and forth between grading papers and watching "This Old House," providing dual-use not only for the display but also the whole den. Now if I can just get through to ask a few questions about our attic fan, maybe we'll be even. ∎

Gregory Anderson *is a regular contributor to* Smart Computing *and several other technology publications. He keeps a sharp eye (with the help of thick glasses) on computing trends and enjoys working with geeks of all stripes—most of time. Share your monitor musings at* **gregory-anderson@smartcomputing.com.**

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